

**Guidelines for the development of abstract test suites (ISO TC 184/SC4 N434)**  
**Ballot Comments & Resolutions**

This page is organized into three parts:

1. The Issue Tables which organize all the issues into those which require more discussion and those which should not require much more discussion.
2. The ATS Impact section describes the affect that proposed changes in the ATS Guidelines would have on an ATS.
3. The ATS Issues and Proposed Resolutions is the complete listing of ATS issues, discussion and proposed resolutions.

**Change Log**

- \* 10/6/96 Initial version published on the web
- \* 11/7/96 UKATS-18 added to list of changes to clause 6
- \* 11/19/96 Fixed some broken links
- \* 12/9/96 Add French comments

**Editorial comments that require more discussion**

Issue #	Proposed Resolution	Issue #	Proposed Resolution
GER N434-1	REJECT	UKATS-22	REJECT
UKATS-27	REJECT	UKATS-33	REJECT
UKATS-45	ACCEPT	UKATS-49	REJECT
UKATS-50	REJECT	UKATS-64	REJECT
UKATS-75	ACCEPT	UKATS-80	ACCEPT
UKATS-85	ACCEPT	USA-N434-23	ACCEPT
USA-N434-24	ACCEPT	USA-N434-26	ACCEPT
USA-N434-28	ACCEPT	USA-N434-29	ACCEPT
USA-N434-37	ACCEPT with modifications	USA-N434-42	ACCEPT with modifications
USA-N434-44	ACCEPT with modifications	USA-N434-45	ACCEPT
USA-N434-48	ACCEPT with modifications	USA-N434-53	ACCEPT
USA-N434-54	ACCEPT	USA-N434-59	ACCEPT
USA-N434-60	ACCEPT with modification	USA-N434-65	ACCEPT with modifications
USA-N434-67	REJECT	USA-N434-69	ACCEPT with modification
USA-N434-73	ACCEPT with modifications	USA-N434-74	ACCEPT
USA-N434-83	ACCEPT	USA-N434-91	ACCEPT
USA-N434-92	ACCEPT	USA-N434-93	ACCEPT
USA-N434-94	ACCEPT	USA-N434-95	OPEN

**Technical comments that require more discussion**

Issue #	Proposed Resolution	Issue #	Proposed Resolution
UKATS-04	ACCEPT/REJECT	UKATS-05	ACCEPT
UKATS-06	REJECT	UKATS-07	REJECT
UKATS-10	ACCEPT	UKATS-15	REJECT
UKATS-16	ACCEPT	UKATS-17	REJECT
UKATS-18	ACCEPT with modifications	UKATS-20	ACCEPT with modifications

USA-N434-01ACCEPT with modifications USA-N434-12 OPEN  
USA-N434-13OPEN USA-N434-20 ACCEPT  
USA-N434-21ACCEPT with modifications FRA-6 OPEN

Comments discussed at Kobe that require more discussion

Issue # Proposed Resolution Issue # Proposed Resolution  
USA-N434-09ACCEPT with modifications USA-N434-10 ACCEPT with modifications  
USA-N434-16ACCEPT with modifications USA-N434-17 ACCEPT with modifications  
USA-N434-25ACCEPT

Editorial comments that should require little or no discussion

Issue #	Proposed Resolution	Issue #	Proposed Resolution
GER N434-2	ACCEPT	GER N434-3	ACCEPT
GER N434-4	ACCEPT	UKATS-21	ACCEPT
UKATS-23	ACCEPT	UKATS-24	ACCEPT
UKATS-25	ACCEPT	UKATS-26	ACCEPT
UKATS-28	ACCEPT	UKATS-29	REJECT
UKATS-30	ACCEPT	UKATS-31	REJECT
UKATS-32	ACCEPT	UKATS-34	ACCEPT
UKATS-35	REJECT	UKATS-36	ACCEPT
UKATS-37	ACCEPT	UKATS-38	ACCEPT
UKATS-39	ACCEPT	UKATS-40	ACCEPT
UKATS-41	ACCEPT	UKATS-42	REJECT
UKATS-43	ACCEPT	UKATS-44	ACCEPT
UKATS-46	ACCEPT	UKATS-47	ACCEPT
UKATS-48	REJECT	UKATS-51	ACCEPT
UKATS-52	ACCEPT	UKATS-53	(none required)
UKATS-54	ACCEPT	UKATS-55	REJECT
UKATS-56	ACCEPT	UKATS-57	ACCEPT
UKATS-58	ACCEPT	UKATS-59	ACCEPT
UKATS-60	ACCEPT	UKATS-61	ACCEPT
UKATS-62	REJECT	UKATS-63	ACCEPT
UKATS-65	ACCEPT	UKATS-66	REJECT
UKATS-67	ACCEPT	UKATS-68	ACCEPT
UKATS-69	ACCEPT	UKATS-70	ACCEPT with modifications
UKATS-71	REJECT	UKATS-72	ACCEPT
UKATS-73	ACCEPT	UKATS-74	ACCEPT
UKATS-76	ACCEPT	UKATS-77	ACCEPT
UKATS-78	ACCEPT	UKATS-79	(non required)
UKATS-81	ACCEPT	UKATS-82	ACCEPT
UKATS-83	REJECT	UKATS-84	ACCEPT
USA-N434-22	REJECT	USA-N434-27	ACCEPT
USA-N434-30	REJECT	USA-N434-31	ACCEPT
USA-N434-32	ACCEPT	USA-N434-33	ACCEPT
USA-N434-34	ACCEPT	USA-N434-35	ACCEPT
USA-N434-36	ACCEPT	USA-N434-38	ACCEPT with modifications
USA-N434-39	ACCEPT	USA-N434-40	ACCEPT

USA-N434-41REJECT	USA-N434-43 ACCEPT
USA-N434-46ACCEPT	USA-N434-47 ACCEPT
USA-N434-49ACCEPT	USA-N434-50 ACCEPT
USA-N434-51ACCEPT	USA-N434-52 ACCEPT
USA-N434-55ACCEPT	USA-N434-56 ACCEPT
USA-N434-57REJECT	USA-N434-58 ACCEPT
USA-N434-61ACCEPT	USA-N434-62 ACCEPT
USA-N434-63ACCEPT	USA-N434-64 ACCEPT
USA-N434-66ACCEPT	USA-N434-68 ACCEPT
USA-N434-70ACCEPT	USA-N434-71 ACCEPT
USA-N434-72REJECT	USA-N434-75 ACCEPT
USA-N434-76ACCEPT	USA-N434-77 ACCEPT
USA-N434-78ACCEPT	USA-N434-79 REJECT
USA-N434-80ACCEPT	USA-N434-81 ACCEPT
USA-N434-82ACCEPT	USA-N434-84 ACCEPT
USA-N434-85ACCEPT	USA-N434-86 ACCEPT
USA-N434-87ACCEPT	USA-N434-88 REJECT
USA-N434-89ACCEPT	USA-N434-90 ACCEPT
FRA-1 ACCEPT	FRA-2 ACCEPT
FRA-3 ACCEPT with modifications	FRA-4 ACCEPT

Technical comments that should require little or no discussion

Issue #	Proposed Resolution	Issue #	Proposed Resolution
UKATS-01	ACCEPT	UKATS-02	ACCEPT
UKATS-03	ACCEPT	UKATS-08	(none required)
UKATS-09	ACCEPT	UKATS-11	ACCEPT
UKATS-12	ACCEPT	UKATS-13	ACCEPT
UKATS-14	ACCEPT	UKATS-19	ACCEPT (no change required)
USA-N434-02REJECT		USA-N434-03	ACCEPT
USA-N434-04ACCEPT with modifications		USA-N434-05	REJECT
USA-N434-06REJECT		USA-N434-07	REJECT
USA-N434-08REJECT		USA-N434-14	ACCEPT
FRA-5	ACCEPT with modifications		

Comments discussed at Kobe that should require little or no discussion

Issue #	Proposed Resolution	Issue #	Proposed Resolution
USA-N434-11ACCEPT		USA-N434-15	ACCEPT
USA-N434-18ACCEPT		USA-N434-19	ACCEPT

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### Changes to an ATS as a Result of Proposed Resolutions

This section attempts to identify all the changes to an ATS that would be required as a result of proposed resolutions. This provides an opportunity for reviewers to understand the impact that the proposed changes have on the actual ATS document (as opposed to changes that just affect the guidelines.)

## Minor Editorial Changes to ATS Documents

### Changes to Clause 4 (the test purposes clause):

- \* UKATS-59 - An error in B.1.2 example 30 for AE categorisation test purposes may have misled developers in test purpose documentation. The term "AND" must be capitalized.

- \* USA-N434-11 - All assertion test purposes appear under the application object that appears first in TP name (forward assertions with the "from" object and inverse assertions with the "to" object).

- \* USA-N434-17 - AE test purposes must be listed in alphabetical order by application object. It is proposed that test purpose ids for these test purposes must be assigned in increasing order. The same would hold for AIM test purposes. Gaps would be allowed in the test purpose id sequence to allow for test purposes which have to be manually added.

- \* USA-N434-15, USA-N434-20 and USA-N434-95 - Clarification on AE categorisation test purpose documentation may cause changes in an existing ATS list of test purposes. Read the comment resolutions for the specifics.

- \* USA-N434-91 - Each 'other' test purpose must have one or more associated general or specific verdict criteria.

### Changes to Clause 5 (general test purposes and verdict criteria)

- \* UKATS-17 - Proposed resolution would change the boilerplate for general test purposes and general verdict criteria.

- \* USA-N434-74 - General verdict criteria (in clause 5) need a reference back to the general or other test purpose id to which they are related.

### Changes to Clause 6 (abstract test cases)

- \* UKATS-18 - Clause 6: Proposal would change the boilerplate text describing derived verdict criteria.

- \* USA-N434-60 - Clause 6.x.1 Preprocessor, Input specification section:

  - Proposal would change the text for referencing the preprocessor input specification table.

- \* USA-N434-93 - The Specific verdict criteria section has been renamed to Verdict criteria. Proposed boilerplate text references the general and derived verdict criteria that apply.

- \* USA-N434-74 - Proposed resolution would require specific verdict criteria in the abstract test cases (in clause 6) to include a reference back to the test purpose id (AE, general or other) to which they are related.

- \* USA-N434-21 - Proposes to rename the "AIM test purpose coverage" section to "Test purposes covered". New boilerplate text would be added.

### Changes to Preprocessor input specification table:

- \* USA-N434-93 - Clarification on the "role" string used for assertions may change the Application Elements column in the preprocessor input specification table for some ATSs.

- \* USA-N434-19 - The representation of categorizations in the preprocessor input specification was clarified which may cause changes to some ATSs.

  - Read the comment resolution for the specifics.

- \* USA-N434-9 - A new rule has been proposed for references to the postprocessor input specification instance id from the Value column of a preprocessor input specification:

"All application objects and attributes have a #number reference to the postprocessor input specification instance id in the Value column."

\* USA-N434-10 - The proposed syntax for aggregates is to enclose the entire list in ()'s (similar to the way that lists are encoded in a physical file). Thus an aggregate might look like:

(#100,'1113', #100, '1114')

-or-

(#200, #200)

ORs in the mapping table would be represented by enclosing each path in ()'s (as they are in the mapping table):

(#300,'CDI-1'),(#302,'ABC-2')

-or-

(#400),(#402)

ANDs in the mapping table would be represented by enclosing all the paths in []'s (similar to the mapping table):

[#500,'First', #502,'Second']

-or-

[#600, #602]

\* USA-N434-16 - Multiple postprocessors are represented in the Value column by preceding each Value with '1: ' and '2: ', and so on. Each postprocessor spec value is separated by a space (proposed) or a newline (agreed at Kobe).

#### Other changes

In general there have been several boilerplate changes. It is best to copy all boilerplate from the Guidelines into the ATS.

#### Document structure changes

##### 1. Proposed changes to clause 4:

o Subclause 4.1 USA-N434-54 proposes to move domain test purposes to subclause 4.4 causing the other following changes:

o Subclause 4.2 Application element test purposes becomes subclause 4.1

o Subclause 4.3 AIM test purposes becomes subclause 4.2

o Subclause 4.4 External reference test purposes becomes subclause 4.5

o Subclause 4.5 Implementation method test purposes becomes subclause 4.3

##### 2. Proposed changes to Clause 6:

o In subclause 6.x, USA-N434-21 proposes to remove the section, "Other test purpose coverage". Test purposes listed in that section would be moved to one or all of the new "Test purposes covered" sections below.

o In subclause 6.x.1 Preprocessor, USA-N434-21 proposes to add a new section as the first section entitled "Test purposes covered".

There is new boilerplate text proposed for this section. Any test purposes from the old "Other test purpose coverage section" would be added here as well.

o Multiple postprocessor specification no longer appear in separate "Input specification" sections, but rather are present in their own subclause (6.x.2 for the first post processor, 6.x.3 for the second postprocessor and so on). Each postprocessor subclause has the same set of section headers as the preprocessor subclause except for "Constraints on values".

o All postprocessor input specifications (Part 21 or Part 12) were moved to an electronic Annex (see USA-N434-25).

3. Annex C was moved to Annex D.

4. Annex C was added which is a table defining the relationship between files in the electronic annex to postprocessor test cases (see USA-N434-25).

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#### ATS Guidelines Issues and Proposed Resolutions

ISSUE NUMBER: GER N434-1

AUTHOR: Besekau, Endres, Groepper, Dr. Kaefer, Wenzel

CLAUSE:

CLASSIFICATION: Minor Editorial

DESCRIPTION:

ATS documents should not be referred to as ISO10303 parts. They will be published as Technical Reports.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: REJECT

The fact that an ATS will initially be published as a TR does NOT change anything - the ATSG can keep referring to it as ISO 10303-3xx. A Type II TR will be standardized ultimately, so the guidelines should target the final status of the document. However, change Item c) as described in USA-N434-1

ISSUE NUMBER: GER N434-2

AUTHOR: Besekau, Endres, Groepper, Dr. Kaefer, Wenzel

CLAUSE:

CLASSIFICATION: Minor Editorial

DESCRIPTION:

The references to current organizational structures of SC4 are not adequate, because each reorganization will cause inconsistencies.

PROPOSED SOLUTION:

The document should refer to functions within SC4 that will be assigned to organizational units in the organization handbook.

PROPOSED RESOLUTION: ACCEPT

Change the document to remove references to committees such as WG6.

ISSUE NUMBER: GER N434-3

AUTHOR: Besekau, Endres, Groepper, Dr. Kaefer, Wenzel

CLAUSE: 2

CLASSIFICATION: Minor editorial

DESCRIPTION:

As normative reference the part ISO 10303-12 is listed.

PROPOSED SOLUTION:

Remove ISO 10303-12 in the list of normative references.

PROPOSED RESOLUTION: ACCEPT

Remove ISO 10303-12 from the list of normative references and add it to the bibliography.

ISSUE NUMBER: GER N434-4

AUTHOR: Besekau, Endres, Groepper, Dr. Kaefer, Wenzel

CLAUSE:

CLASSIFICATION:

DESCRIPTION:

Th document should not be referred to in the text as technical report, but as document. E.g. the sentence "This technical report..." should be changed to "This document..." (Clause 1, page 1), etc.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Change all references to this document being a "technical report" to simply "document"

ISSUE NUMBER: UKATS-01

CLAUSE: p6, itemised list

CLASSIFICATION: Major Technical

add item between (a) and (b): 'plan the abstract test cases and map the test purposes to each (it is no use writing ATCs in the hope that they will fulfil requirements identified separately)

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-02

CLAUSE: 4.1, para 2

CLASSIFICATION: Major Technical

not all test purposes are covered by the ATS

PROPOSED RESOLUTION: ACCEPT

Delete the sentence beginning with, "Each test purpose shall..."

ISSUE NUMBER: UKATS-03

CLAUSE: 4.1

CLASSIFICATION: Major Technical

there are also test purposes which are specific to the implementation method employed, derived directly from -21 or -22 (not Annex C of the application protocol)

PROPOSED RESOLUTION: ACCEPT

Re-word the statement to make the intent clearer by dropping the text, "Implementation method" from the beginning of the sentence.

ISSUE NUMBER: UKATS-04

CLAUSE: 4.3

CLASSIFICATION: Major Technical

this section is unclear: there is a blurring between test purposes and verdict criteria. The concept of 'general test purposes' is not helpful and should be removed from the document.

PROPOSED RESOLUTION: ACCEPT/REJECT

Section 4.3 will be redone as a result of the general document reorganization. General test purposes remain as an established concept with broad support. New document wording will help to emphasize the importance and role played by general test purposes.

ISSUE NUMBER: UKATS-05

CLAUSE: P10, para 2

CLASSIFICATION: Major Technical

minimal object and entity sets need to be constructed for each conformance class, not on the basis of one for each application protocol

PROPOSED RESOLUTION: ACCEPT

Add a new sentence after the second sentence to the paragraph: "In such a case the minimal object and entity sets may be defined for each conformance class". (see also USA-N434-37 and USA-N434-83)

ISSUE NUMBER: UKATS-06

CLAUSE: 8.1.2, bullet 1

CLASSIFICATION: Major Technical

this is not correct: -21 provides other requirements (for example: which entity mapping is used) which are not syntactic and which require a specific test

PROPOSED RESOLUTION: REJECT

Choice of entity mapping IS considered a syntactic choice and is therefore covered.

ISSUE NUMBER: UKATS-07

CLAUSE: p25, column 5

CLASSIFICATION: Major Technical

whilst this is sensible practice for a range of numeric deviations, it would be complex for structural deviations: this needs to be addressed more explicitly

PROPOSED RESOLUTION: REJECT

Complex structural deviations would be unlikely without altering the semantic content of the model. The result is two different semantic models which must then be separated into different abstract test cases. Even if this weren't true, the easiest solution is to separate them into two test cases. Simple structural changes should easily be accommodated through using the Cn notes.

ISSUE NUMBER: UKATS-08

CLAUSE: p27, para 5

CLASSIFICATION: Major Technical

'specific verdict criteria ...': can an abstract test case provide more detail than the ARM and the mapping table? If so, from where has the information been derived?

PROPOSED RESOLUTION: (none required)

An example is the AP203 application object, `Geometric_model_representation`. The derived VC (specifying that the semantic of `Geometric_model_representation` must be preserved by the IUT) was not deemed specific enough to assign a verdict for this test purpose. Specific verdict criteria were developed to further specify statements about the output of the IUT for the application object, `Geometric_model_representation`, which must be true to determine whether the semantic of `Geometric_model_representation` has been correctly preserved by the IUT.

ISSUE NUMBER: UKATS-09

CLAUSE: p27, example 24

CLASSIFICATION: Major Technical



this example implies 'that geometric tests are based on figures, which the NAVFAC tests (in 1986) showed was infeasible. If one is testing B-spline surfaces, for example, some numbers are needed somewhere: this issue cannot be fudged.

PROPOSED RESOLUTION: ACCEPT

Prior text in 8.2.4.1 clearly states that diagrams or other graphical representations can be included. One is not limited to drawings or figures.

ISSUE NUMBER: UKATS-10

CLAUSE: p29, para 1

CLASSIFICATION: Major Technical

EXPRESS-I satisfies the requirement of having parameterised data values, with the CONTEXT construct. This paragraph is therefore incorrect and should be deleted. Also, it is not clear that 'a convention may be adopted and used' is standardisable.

PROPOSED RESOLUTION: ACCEPT

There is no longer a requirement for parameterized data values. Drop the last two sentences of that paragraph.

ISSUE NUMBER: UKATS-11

CLAUSE: 8.2.5.3, para 5, line 5

CLASSIFICATION: Major Technical

'promote': how?

PROPOSED RESOLUTION: ACCEPT

Change the sentence to read: "...will assign fixed values during the creation of executable test cases for postprocessor input."

ISSUE NUMBER: UKATS-12

CLAUSE: 9.1, bullets

CLASSIFICATION: Major Technical

need to check that the test purposes covered by the abstract test cases are sufficient for the application domain (this is an extra stage)

PROPOSED RESOLUTION: ACCEPT

Add the following bullet:

"- Contain a set of test purposes sufficient for the application domain;"

Change the first bullet to: "- Contain test cases that adequately cover the test purposes;"

ISSUE NUMBER: UKATS-13

CLAUSE: B.2.2, para 3

CLASSIFICATION: Major Technical

the 'upper limit' of an aggregation is not the same as 'many': must be clarified

PROPOSED RESOLUTION: ACCEPT

Add the following text after Example 34:

"If an explicit upper limit is specified for the aggregation then the AE test purpose still uses the words, "of many elements" as shown in example 33. If necessary a domain test purpose may specify a specific number of elements. An aggregation with a fixed number of members results in a single test purpose with the words "of <n> elements" where <n> is replaced by the fixed number of members."

ISSUE NUMBER: UKATS-14

CLAUSE: p43, line 1

CLASSIFICATION: Major Technical

there are also the cases of 'exactly N' and 'between i and j' which need to be included

PROPOSED RESOLUTION: ACCEPT

see resolution to UKATS-13.

ISSUE NUMBER: UKATS-15

CLAUSE: p48, example 2

CLASSIFICATION: Major Technical

why is there no test for the lower bound (of 2)? If the lower bound were one, would it not have such a test?

PROPOSED RESOLUTION: REJECT

One is normally a special case in any testing scenario. Multiple elements (such as when the lower bound is greater than one) do not normally require a special test case other than "many". The "many" TP allows ATS developers to pick any lower bound that is greater than one. One can also define domain TPs with specific bounds.

ISSUE NUMBER: UKATS-16

CLAUSE: P50

CLASSIFICATION: Major Technical

it is not clear how 'chained selects' should be documented

PROPOSED RESOLUTION: ACCEPT

Add an example to explain this.

ISSUE NUMBER: UKATS-17

CLAUSE: p66, boilerplate 5.1

CLASSIFICATION: Major Technical

these are not test purposes: they are verdict criteria and should be included in the appropriate section. We are unsure when the perceived need to have test purposes corresponding to every verdict criteria was introduced, but it blurs the distinction between the two. Test purposes provide requirements for abstract test cases; verdict criteria are requirements which have to be fulfilled by a conforming processor.

PROPOSED RESOLUTION: REJECT

They are not verdict criteria since they are not statements which evaluate to true or false. The boilerplate text above the general test purposes clearly states the difference between the two and how they are related.

Change the general test purposes and verdict criteria to help clarify the relationship to the following:

g1 The output of an IUT shall preserve all the semantics defined by the input model according to the reference paths specified in the mapping table defined in clause 5 of ISO 10303-2<??>.

g2 The output of a preprocessor shall conform to the implementation method to which the IUT claims conformance.

g3 The instances in the output of a preprocessor shall be encoded according to the AIM EXPRESS long form and mapping table as defined in Annex A and clause 5 of ISO 10303-2<??>.

g4 A postprocessor shall accept input data which is encoded according to the implementation method to which the IUT claims conformance.

g5 A postprocessor shall accept input data structured according to the AIM EXPRESS long form and mapping table as defined in Annex A and clause 5 of ISO 10303-2<??>.

gvc1 The semantics of the input model are preserved in the output of the IUT according to the reference paths specified in the mapping table defined in clause 5 of ISO 10303-2<??> (g1).

gvc2 The output of a preprocessor conforms to the implementation method to which the IUT claims conformance (g2).

gvc3 The instances in the output of a preprocessor are encoded according to the AIM EXPRESS long form and mapping table as defined in Annex A and clause 5 of ISO 10303-2<??> (g3).

gvc4 The postprocessor accepts input data which is encoded according to the implementation method to which the IUT claims conformance (g4).

gvc5 The postprocessor accepts input data which is structured according to the AIM EXPRESS long form and mapping table as defined in Annex A and clause 5 of ISO 10303-2<??> (g5).

ISSUE NUMBER: UKATS-18

CLAUSE: E.10 (page 67)

CLASSIFICATION: Major Technical

The explanatory text for the abstract test case documentation is totally inadequate for the interpretation of '\*' (derived verdict criteria). Unlike the ATS developer, the users of the ATS document will not have a clear understanding of what a derived verdict criteria is, and some explanation should be provided here.

PROPOSED SOLUTION: Add a note on the following lines: A '\*' indicates that for the identified AE test purpose 'TP' the following derived verdict criteria apply: For the preprocessor: The model shall contain an instance of 'TP' as 'AIM element'. For the postprocessor: The postprocessor shall correctly interpret 'AIM element' as 'TP'. (Where 'AIM element' is the corresponding AIM element as defined in clause 4 of the application protocol.). If this proposed solution is regarded as too simplistic then a simplified version of annex D should be included in every ATS document. It would be preferable to restrict the use of \* to the simple derivation cases and provide specific verdict criteria in all complex situations.

PROPOSED RESOLUTION: ACCEPT with modifications Insert the following text after the third sentence: "The derived verdict criteria determine whether the semantics associated with the application element are preserved in the output of the IUT according to the reference paths specified in the mapping table defined in clause 5 of the AP."

ISSUE NUMBER: UKATS-19

CLAUSE: E.12

CLASSIFICATION: Major Technical

should be included to cover each abstract test suite: this will give a mechanism for defining (uniquely) why a particular processor failed

PROPOSED RESOLUTION: ACCEPT (no change required)

ISSUE NUMBER: UKATS-20

CLAUSE: Annex F (pages 70 to 79)

CLASSIFICATION: Major Technical

In 8.2.4.1 (p 25) it is clearly recognised that the table alone will rarely be sufficient to completely define the preprocessor test, but in Annex F there is no proper provision for the "hardcopy" information

referred to on page 25, other than in a final 'extra details' section. The textual and graphical description of the test case should have at least the same importance as the table and a first section 'Input description' added for this purpose. The table is very useful for identifying elements of the data model and associating them with verdict criteria and should be used primarily for this purpose.

PROPOSED SOLUTION: Add Input Description section to Preprocessor subclause. (To include text and diagrams as appropriate.) Permit pruning of table for all non-verdicted application elements. (Except in very rare circumstances of a fully detailed and populated ARM it will be impossible to create a legal data model without using some additional AIM constructs which have no direct relation to the ARM, hence an ARM based table cannot fully define a pre-processor test case.) (\* ITI comments:

Any figures or supporting information are considered part of the input specification and therefore should appear in that section of the preprocessor subclause. Annex F identifies the location of figures and diagrams as immediately following the table, but the guidelines do not make that very clear. \*)

PROPOSED RESOLUTION: ACCEPT with modifications

Add better text to explain where the figures and diagrams should appear.

ISSUE NUMBER: UKATS-21

CLAUSE: scope, para 2, line 3

CLASSIFICATION: Editorial

'co-operativity' ?

PROPOSED RESOLUTION: ACCEPT

Change text to 'interoperability'.

ISSUE NUMBER: UKATS-22

CLAUSE: p5, para 1

CLASSIFICATION: Editorial

change 'characteristics called 'out' to 'requirement documented'

PROPOSED RESOLUTION: REJECT

"Requirement documented" is too limiting. It doesn't cover AIM structure or syntax of the implementation method. Section 7 provides the necessary definition on what "characteristics" are used in developing test purposes.

ISSUE NUMBER: UKATS-23

CLAUSE: p5, para 2, line 3

CLASSIFICATION: Editorial

change 'considered abstract' to 'so named'

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-24

CLAUSE: p5, para 2, line 5

CLASSIFICATION: Editorial

delete 'an expansion of the abstract test cases': the process is of translation, not adding information

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-25

CLAUSE: p5, bullet 7

CLASSIFICATION: Editorial

should 'methods' be singular; alternatively, reference - 35

PROPOSED RESOLUTION: ACCEPT

Add reference to -35.

ISSUE NUMBER: UKATS-26

CLAUSE: p7, bullet c

CLASSIFICATION: Editorial

'shall' is used here ( and throughout the rest of the document): is this appropriate for a document which contains 'guidelines' in the title?

PROPOSED RESOLUTION: ACCEPT

The supplementary directives talk about use of shall, should, must etc. in STEP parts, not guidelines documents. Since the guidelines documents are just that (guidelines not standards), the use of shall may imply too much enforcement. Other guidelines documents avoid the use of shall by constructing sentences in a different way. Change the Guidelines to remove the use of "shall" where appropriate.

ISSUE NUMBER: UKATS-27

CLAUSE: 3.3.3

CLASSIFICATION: Editorial

'expected results' or 'reference results' are accepted ISO terms: there is no need to introduce superfluous terminology when agreed terms and definitions exists already

PROPOSED RESOLUTION: REJECT

EOS is different from 'expected results' or 'reference results'. Moreover, these terms are not defined in Parts 1, 31, or 32.

ISSUE NUMBER: UKATS-28

CLAUSE: 4, bullet 4

CLASSIFICATION: Editorial

no mention of ISO 10303-35; give reference to 10303-22

PROPOSED RESOLUTION: ACCEPT

ISO 10303-35 is referenced, but add a reference to -22.

ISSUE NUMBER: UKATS-29

CLAUSE: 4, figure 1

CLASSIFICATION: Editorial

is it worth separating this for 10303-21 and -22?

PROPOSED RESOLUTION: REJECT

This was added as a result of previous comments to explicitly show how both follow the same process.

ISSUE NUMBER: UKATS-30

CLAUSE: 4.1, para 3, line 6

CLASSIFICATION: Editorial

change 'this' to 'each'

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-31

CLAUSE: 4.1, para 4

CLASSIFICATION: Editorial

the abbreviation 'AE' is not a very useful one and is not used enough times to warrant being abbreviated:  
delete from abbreviations and use in full to increase readability

PROPOSED RESOLUTION: REJECT

The term is used almost 40 times in the document. We believe that is sufficient to justify its abbreviation.  
Readability is improved since AE stands out in the text just as AIM does.

ISSUE NUMBER: UKATS-32

CLAUSE: 4.1, para 5, line 5

CLASSIFICATION: Editorial

'entitled'

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-33

CLAUSE: 4.2, para 1

CLASSIFICATION: Editorial

note that 'verification' and 'validation' are IEEE definitions, not their STEP versions

PROPOSED RESOLUTION: REJECT

The terms verification and validation are used in a general sense and the STEP definition for verification is valid in this context. STEP has no definition for validation - so its ok. We are not implying the use of IEEE definitions for the words - just dictionary definitions.

ISSUE NUMBER: UKATS-34

CLAUSE: 4.2, para 2, line-3

CLASSIFICATION: Editorial

change 'number' to 'number and size'

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-35

CLAUSE: 4.3, line 3

CLASSIFICATION: Editorial

change 'purposes' to 'cases'

PROPOSED RESOLUTION: REJECT

This completely changes the meaning of the sentence. The use of 'purposes' is the correct and intended term.

ISSUE NUMBER: UKATS-36

CLAUSE: 4.3, para 1, line -3

CLASSIFICATION: Editorial

it is not clear that general verdict criteria have associated general test purposes at this point in the document  
(and see 'technical issue' above anyway)

PROPOSED RESOLUTION: ACCEPT

This issue will be addressed as part of the general document reorganization.

ISSUE NUMBER: UKATS-37

CLAUSE: 4.3, para 2, sentence 1

CLASSIFICATION: Editorial

this is patently untrue: implementation methods also provide them, and documents referenced by the application protocol

PROPOSED RESOLUTION: ACCEPT

Re-word the first sentence to replace the word "itself" with "and its normative references".

ISSUE NUMBER: UKATS-38

CLAUSE: p10, para 2

CLASSIFICATION: Editorial

give reference to 10303-31 to describe basic tests; the text in -31 is agreed already

PROPOSED RESOLUTION: ACCEPT

(see text proposed in USA-N434-37)

ISSUE NUMBER: UKATS-39

CLAUSE: 8.1.2, bullet 1

CLASSIFICATION: Editorial

remove additional '.'

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-40

CLAUSE: 8.1.2, bullet 2

CLASSIFICATION: Editorial

delete comma before 'series'

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-41

CLAUSE: 8.1.2, example 15

CLASSIFICATION: Editorial

change construction to 'method' to which the IUT claims conformance' (this appears many times throughout the document)

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-42

CLAUSE: p23, para 1

CLASSIFICATION: Editorial

change 'derived' to developed' (and elsewhere)

**PROPOSED RESOLUTION: REJECT**

The term "derived" is closer to reality. The term is also too well ensconced in the vocabulary of ATS developers to change at this late date.

ISSUE NUMBER: UKATS-43

CLAUSE: p23, example 19

CLASSIFICATION: Editorial

what does 'match' mean?

**PROPOSED RESOLUTION: ACCEPT**

Change to "preserve semantics of"

ISSUE NUMBER: UKATS-44

CLAUSE: 8.1, last para

CLASSIFICATION: Editorial

already documented, so delete

**PROPOSED RESOLUTION: ACCEPT**

This will be addressed as part of the document reorganization. Document reorganization will be delayed until resolution is reached on the other technical issues.

ISSUE NUMBER: UKATS-45

CLAUSE: pg24, bullet 1

CLASSIFICATION: Editorial

'other test purposes': no other types of test purpose have appeared yet: this must be reorded.

**PROPOSED RESOLUTION: ACCEPT**

Rename this section to "Test purposes covered" and move to the Preprocessor clause. Add boilerplate text to identify all the test purposes (including other) that are addressed by the test case (see USA-N434-21).

ISSUE NUMBER: UKATS-46

CLAUSE: 8.2

CLASSIFICATION: Editorial

refer to 10303-31 and ensure that text in ATS guidelines is consistent with it

**PROPOSED RESOLUTION: ACCEPT**

Review the document to ensure consistency with -31.

ISSUE NUMBER: UKATS-47

CLAUSE: 8.2

CLASSIFICATION: Editorial

at this point in the document, ATC development has been addressed rather than ATS development: suggest (strongly) that test purpose documentation is included before ATC development. This would reflect both the time-based order of development and the appearance in the 300-series part anyway.

**PROPOSED RESOLUTION: ACCEPT**

This will be addressed as part of the document reorganization. Document reorganization will be delayed until resolution is reached on the other technical issues.



ISSUE NUMBER: UKATS-48

CLAUSE: 8.2.4.1, bullet 2

CLASSIFICATION: Editorial

the use of '\*' is confusing

PROPOSED RESOLUTION: REJECT

'\*' is commonly used to refer to an unspecified value. Boilerplate text in the ATS defines its meaning. It was also agreed to at Dallas and there does not appear to be a good reason to change it at this late date.

ISSUE NUMBER: UKATS-49

CLAUSE: 8.2.4.3

CLASSIFICATION: Editorial

use 'observed (test) outcome' rather than 'observable output' (i.e. use an agreed term and definition rather than making up something new) (also occurs elsewhere)

PROPOSED RESOLUTION: REJECT

"Output" is different from "outcome" (2nd sentence of 8.2.4.3). What we want here is output, not outcome. To make it clearer modify the sentence to read: "They are assertions on the observed output of an implementation under test resulting from its execution of a test case."

ISSUE NUMBER: UKATS-50

CLAUSE: p25, footnote 6

CLASSIFICATION: Editorial

was this not agreed at Dallas?

PROPOSED RESOLUTION: REJECT

It was not resolved at Dallas. The footnote will be dropped. The original intent was to allow a mechanism to link the application object to its instance identifier in a Part 12 file. Since that time, the Guidelines have changed. Such a link is now required in the Value column of the application object so there is no longer a need for a special syntax in the Id column.

ISSUE NUMBER: UKATS-51

CLAUSE: p26, para 1

CLASSIFICATION: Editorial

singular 'description'

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-52

CLAUSE: p26, bullet 1

CLASSIFICATION: Editorial

'more information than required' required for what? Clarify

PROPOSED RESOLUTION: ACCEPT

Change the bullet text to the following:

"...any more information than required to unambiguously represent the semantic content."

ISSUE NUMBER: UKATS-53

CLAUSE: p27, example 23

CLASSIFICATION: Editorial

the figure appears to include extra information, so it must be a requirement

PROPOSED RESOLUTION: (none required)

Correct. The figure is a normative part of the input specification and is designed to further describe the semantic content of the input specification.

ISSUE NUMBER: UKATS-54

CLAUSE: 8.2.5.1, line 3

CLASSIFICATION: Editorial

change ' this the' to 'this' (or 'the')

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-55

CLAUSE: p28, example 25

CLASSIFICATION: Editorial

this is also needed for preprocessor testing, if the requirement is to allow dates in different formats: not clear what the example is exemplifying

PROPOSED RESOLUTION: REJECT

A preprocessor cannot be forced to generate a specific encoding of an application object when several options are allowed in a mapping table. Therefore there is no requirement for multiple preprocessor input specifications as there is for postprocessor input specifications.

ISSUE NUMBER: UKATS-56

CLAUSE: p28, footnote 7

CLASSIFICATION: Editorial

a Technical Report Type 2 is (de facto) stable: this footnote should be deleted

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-57

CLAUSE: 9, line 2

CLASSIFICATION: Editorial

change 'the individual' to 'each individual' and make 'cases' singular

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-58

CLAUSE: 9, line 4

CLASSIFICATION: Editorial

delete 'principal'

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-59

CLAUSE: A.1, para 1

CLASSIFICATION: Editorial

ensure that capital letters are used in the ensuing examples as required by this text

PROPOSED RESOLUTION: ACCEPT

Capitalize the term 'AND' in the examples.

ISSUE NUMBER: UKATS-60

CLAUSE: A.1, production 0

CLASSIFICATION: Editorial

are the apostrophes really ' and ' or two appearances of the same character?

PROPOSED RESOLUTION: ACCEPT

Turn off the Word smart quote feature so that the correct character is used.

ISSUE NUMBER: UKATS-61

CLAUSE: A. 1, production 6

CLASSIFICATION: Editorial

no trailing '

PROPOSED RESOLUTION: ACCEPT

Add the missing '

ISSUE NUMBER: UKATS-62

CLAUSE: A.3 production 21

CLASSIFICATION: Editorial

should this be lower case for consistency?

PROPOSED RESOLUTION: REJECT

Upper case is consistent with Part 11.

ISSUE NUMBER: UKATS-63

CLAUSE: p36, para 3

CLASSIFICATION: Editorial

delete version-specific information

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-64

CLAUSE: B.1.2, para 3, line 1

CLASSIFICATION: Editorial

'abstract supertype' is an EXPRESS concept and therefore not necessarily appropriate for all ARMs

PROPOSED RESOLUTION: REJECT

'abstract supertype' is a general term in data modeling. It is also defined in the AP Guidelines for clause 4.2 of an AP.

ISSUE NUMBER: UKATS-65

CLAUSE: p39, para 1

CLASSIFICATION: Editorial  
delete 'might possibly'  
PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-66

CLAUSE: p40, note 4  
CLASSIFICATION: Editorial  
is the use of lowercase too subtle a distinction for the reader?  
PROPOSED RESOLUTION: REJECT  
The keyword 'as' also precedes the categorisation and thus makes the syntax more distinct.

ISSUE NUMBER: UKATS-67

CLAUSE: B.2.3, para 1  
CLASSIFICATION: Editorial  
the note which follows (note 6) contradicts this text  
PROPOSED RESOLUTION: ACCEPT  
Move and reword the following sentence from the beginning of B.2.3 to just before Note 6 to help clarify the intent:  
"Attributes that reference a closed range of integer, character, or string values result in at most one test purpose for each possible value."

ISSUE NUMBER: UKATS-68

CLAUSE: B.2, para 1, line 3  
CLASSIFICATION: Editorial  
does not make sense  
PROPOSED RESOLUTION: ACCEPT  
Change 'and' to 'an'.

ISSUE NUMBER: UKATS-69

CLAUSE: B.2.4, para 4  
CLASSIFICATION: Editorial  
'present test purpose' is not clear  
PROPOSED RESOLUTION: ACCEPT  
Replace "will contain one present test purpose" with "result in a test purpose"

ISSUE NUMBER: UKATS-70

CLAUSE: C.1.1, para 1  
CLASSIFICATION: Editorial  
this repeats C.1 (so delete it)  
PROPOSED RESOLUTION: ACCEPT with modifications  
Remove the duplicated text from C.1 by deleting all but the first sentence. Move subclause C.1.1 to C.4.  
Reword the new C.4 as follows:  
"EXPRESS RULES (global constraints), FUNCTIONS and PROCEDURES that act as local constraints, and INVERSE attributes may disallow certain AIM structure. This may disallow the instantiation of

entities of a particular type, affect the cardinality of an aggregate attribute, restrict the range of values that an ENUMERATION, LOGICAL, or BOOLEAN type attribute may assume, or constrain the instantiated model in some other way. Ant test purpose generated by the process described in C.2 and C.3 above that indicates an AIM structure in violation of any defined EXPRESS constraint should not be included in the resultant set of AIM derived test purposes."

ISSUE NUMBER: UKATS-71

CLAUSE: p45, line -1

CLASSIFICATION: Editorial

change 'to not be' to 'not to be'

PROPOSED RESOLUTION: REJECT

The string 'to not be' could not be found anywhere in our copy of the guidelines.

ISSUE NUMBER: UKATS-72

CLAUSE: C.2.2

CLASSIFICATION: Editorial

it appears from first reading that ONEOF subtypes have no test purposes, which is not the case: they have them from the entities themselves: make this clear

PROPOSED RESOLUTION: ACCEPT

Change "have no associated test purposes" to "do not require a test purpose".

ISSUE NUMBER: UKATS-73

CLAUSE: C.3.6, line 1

CLASSIFICATION: Editorial

'least'

PROPOSED RESOLUTION: ACCEPT

Change 'lease' to 'least'

ISSUE NUMBER: UKATS-74

CLAUSE: p51, para 1

CLASSIFICATION: Editorial

'present test purpose' is unclear (again)

PROPOSED RESOLUTION: ACCEPT

Replace "will contain present test purposes" with "result in a test purpose"

ISSUE NUMBER: UKATS-75

CLAUSE: annex d

CLASSIFICATION: Editorial

is difficult to follow. -There are many editorial suggestions to improve this annex, but it may be better to try and work together to produce another version.

PROPOSED RESOLUTION: ACCEPT

Jens to work with reviewer on making some changes to the section.

ISSUE NUMBER: UKATS-76

CLAUSE: p59, line 1

CLASSIFICATION: Editorial

'recommended', but the annex is mandatory

PROPOSED RESOLUTION: ACCEPT

The annex contains both required and recommended text. Change 'recommended' to 'required and recommended'.

ISSUE NUMBER: UKATS-77

CLAUSE: E.2

CLASSIFICATION: Editorial

change 'come' to 'be taken'

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-78

CLAUSE: p60, para 2

CLASSIFICATION: Editorial

replace 'AE' by application protocol terms: application elements will not be understood at the start of an ATS document

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: UKATS-79

CLAUSE: E.4

CLASSIFICATION: Editorial

this is very close to material for the supplementary directives: what is the intended overlap (or roles)?

PROPOSED RESOLUTION: (non required)

Much of this material will migrate to the Supplementary Directives (see USA-N434-49).

ISSUE NUMBER: UKATS-80

CLAUSE: p68, para 2

CLASSIFICATION: Editorial

the asymmetry between preprocessor and postprocessor is both unclear and unjustified

PROPOSED RESOLUTION: ACCEPT

Change the sections within preprocessor and postprocessor subclauses so they are nearly identical. Include the following sections in the preprocessor and postprocessor subclauses:

Test purposes covered

Input specification Constraints on values (optional, preprocessor only)

Verdict criteria

Execution sequence (optional)

Extra details (optional)

ISSUE NUMBER: UKATS-81

CLAUSE: E.10 (pages 67 to 68)

CLASSIFICATION: Editorial

Boilerplate text should be grammatically correct and unambiguous. The following corrections are recommended:

Add punctuation to first paragraph:

`All the test purposes addressed by the test case are referenced explicitly, in the other and AIM test purposes covered sections, or indirectly, through the verdicted rows of the preprocessor input specification table.'

Change mirrors in 3rd paragraph to mirror images.

Change the columnn descriptors to:

- `- The Id column is used to reference application objects for assertions and `categorisations. It uses the same identifier as the test purpose associated with the application element in that row of the table.
- The V column specifies whether, or not, the element in that row of the table is verdicted in this test case. A blank indicates that it is not verdicted. A `\*' indicates that it is verdicted using a derived verdict criteria. A number references a specific verdict criteria defined at the end of the table.
- The application Elements and Categorisations column identifies the particular application element or categorisation that is being defined by the table. For assertions the role is specified in parenthesis.
- The value column specifies a specific value for the application element. For application objects and attributes the value column defines the semantic value for that element's instance in the input model. A #<number in the column is a reference to an entity instance name in the postprocessor input specification where the corresponding value is specified. For assertions, this column holds a link to the related application object. For categorisations, the Value column identifies the subtype application object. A `not\_present' indicates that the application element or categorisation is not present in ther input model.
- The Req column specifies whether the value in the Value column is mandatory (M), suggested (S), or constrained (Cn). A suggested value may be changed by a test realiser. A mandatory value may not be changed due to rules in \Express\, in the mapping table, or to the requirements of the test purpose being verdicted. A constrained value may be modified according to the specific constraints specified at the end of the table.'

The [Note: etc. ] at the end of the boilerplate text should be clearly separated to show that it is NOT part of the required standard text.

**PROPOSED RESOLUTION: ACCEPT**

Make the above changes. Note that other comments against this section also affect the text. Those changes will have to be merged with the above text.

**ISSUE NUMBER: UKATS-82**

**CLAUSE:** annex f, sentence 2

**CLASSIFICATION:** Editorial

this is true only for F.1.

**PROPOSED RESOLUTION: ACCEPT**

Change "This annex" to Annex F.1".

**ISSUE NUMBER: UKATS-83**

**CLAUSE:** p72, footnote 8

**CLASSIFICATION:** Editorial

suggest we use an ISO note

**PROPOSED RESOLUTION: REJECT**

Drop the footnote: the syntax will be added at a later date.

ISSUE NUMBER: UKATS-84

CLAUSE: p79, bullet (g)

CLASSIFICATION: Editorial

what does 'obscure' mean? difficult? undocumentee? many?

PROPOSED RESOLUTION: ACCEPT

Change bullet g) to: "The value for an attribute is constrained when the attribute is verdicted and when changes to the value might cause changes to other parts of the test case which may not be obvious."

Change the Rationale which follows to: "... changes to this value may cause changes to other parts of the test case (such as other parts of the input model or other verdict criteria) which may not be obvious. The constraint referenced by this column should clearly explain ..."

ISSUE NUMBER: UKATS-85

CLAUSE: issue 3

CLASSIFICATION: Editorial

this is 30-series issue, not an ATS guidelines issue: remove

PROPOSED RESOLUTION: ACCEPT

Drop all the issues logged in this annex. The issues have not been kept up to date and most are now irrelevant. This issues log will be used to track all future outstanding issues against the document.

ISSUE NUMBER: USA-N434-1

AUTHOR: Boeing

CLAUSE: Page 7 note under Figure 1 - Conformance test process

CLASSIFICATION: Major, Technical

DESCRIPTION:

There is no mention of when tests must reach international standard status. We are approaching 2 years after the first application protocols were declared international standards and we have no abstract test suites. Application developers need something to use in testing the software they develop. Today several vendors sell products they claim to be compliant but there is no method for independent determination of the correctness of the claim.

PROPOSED SOLUTION:

An item d) should be added which does not allow an application protocol to be declared an international standard without an abstract test suite.

PROPOSED RESOLUTION: ACCEPT with modifications

Change item c to reflect general process of ATS development, not the official process defined by SC4 which is in flux. Change item c) to read:

"c) The initial draft of a complete ATS should be ready at the same time or before the AP reaches final draft international standard."

ISSUE NUMBER: USA-N434-2

AUTHOR: Boeing

CLAUSE: 5.6 Documentation of general test purposes and verdict criteria, page 12

CLASSIFICATION: Minor, Technical

DESCRIPTION:



One of the objectives of test suites is to provide a test information for remedial action. It would be useful if the documentation of test results can give a clue for correction of problems in case of failure.

PROPOSED SOLUTION: Change "and formalized as necessary to ensure they are unambiguous." to "and formalized as necessary to ensure they are unambiguous and informative for corrective measures".

PROPOSED RESOLUTION: REJECT

It is out of scope of this document to define verdict criteria specific enough to indicate corrective measures.

ISSUE NUMBER: USA-N434-3

AUTHOR: Boeing

CLAUSE: 6.3 Application interpreted constructs, page 14

CLASSIFICATION: Minor, Technical

DESCRIPTION:

The untested emerging concept should not be elevated to a standard.

PROPOSED SOLUTION:

Change "Discussion of these relationships is deferred..." to "Discussion of these relationships is excluded\_".

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-4

AUTHOR: Boeing

CLAUSE: 8 Abstract test case development, page 20, 2nd para from the bottom

CLASSIFICATION: Minor, Technical

DESCRIPTION:

The extent of test should be agreed between developers and implementers.

PROPOSED SOLUTION:

Change "the application protocol developers must decide what to test..." to the application protocol developers and implementers in standard community must agree as to what to test \_".

PROPOSED RESOLUTION: ACCEPT with modifications The phrase "and implementors" was inserted in the following sentence: "...the application protocol developers and implementers must decide what to test and how thoroughly to test it".

ISSUE NUMBER: USA-N434-5

AUTHOR: Boeing

CLAUSE: 9.2 Validating the abstract test cases, page 31

CLASSIFICATION: Minor, Technical

DESCRIPTION:

It is useful if the test suite checks the associativity between information elements.

PROPOSED SOLUTION:

Add "- Are the associativity of information elements properly maintained?".

PROPOSED RESOLUTION: REJECT

This is covered by saying that the input specification is correct which includes the assertions between objects.

ISSUE NUMBER: USA-N434-6

AUTHOR: Qualification/Crusey

CLAUSE: page 20 - Clause 7.3.4 Constraint violation test purposes

CLASSIFICATION: Minor, Technical

DESCRIPTION:

Constraint violation testing not viewed as legitimate for conformance testing (although it is considered to be useful testing). If the concept is to remain, there needs to be more guidance on how these test purposes are developed, when they should be developed, and what is the conformance requirement that drives them.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: REJECT

Discussion of constraint violation test purposes have been removed from the document.

ISSUE NUMBER: USA-N434-7

AUTHOR: Qualification/Crusey

CLAUSE: page 15 - Clause 7 Test purpose development

CLASSIFICATION: Minor, Technical

DESCRIPTION:

The OR construct used in the AIM element mapping for an AE semantic describes alternative encodings for that semantic in the AIM. No test purpose(s) are developed to drive the 'exploration' of the alternative disjuncts of such an OR mapping. Thus, the simple test purpose derived from such an AE is inadequate using the given "interpretation" statement; "Correctly instantiate ...". Need additional test purpose, or maybe a new interpretation?

PROPOSED SOLUTION:

PROPOSED RESOLUTION: REJECT

One cannot require a preprocessor to put out all (or any combination) of encoding identified in the mapping table. The correct interpretation is that if you instantiate the AE correctly following one of the acceptable mappings then you have met the requirement in the standard for that AE.

ISSUE NUMBER: USA-N434-8

AUTHOR: Qualification/Crusey

CLAUSE: page 9 - Clause 4.3 Verdict criteria

CLASSIFICATION: Minor, Technical

DESCRIPTION:

Need assurance that the derivable verdict criteria (structure and semantic, Annex D) will be uniformly derived by the testing laboratories /test case realisor. This introduces a requirement on Part 32 or Part 33 such that in order to receive certification, the lab/realisor shall be required to prove that they can derive the verdict criteria according to Annex D, and that Annex D will be uniformly interpreted/applied by different testing labs/test case realisors.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: REJECT

The comment is out of scope of this document. Currently this issue is planned to be addressed in the revised scope of Part 33.

ISSUE NUMBER: USA-N434-9 (Kobe ISSUE 25)

AUTHOR: ITI

CLAUSE:

CLASSIFICATION: Minor, Technical

DESCRIPTION:

The rules for when #<entity-id> numbers appear in the Value column are convoluted. One has to look at the Req column (new name for M/S/C column) and the Value column for particular combinations to determine the meaning. For example:

Id	V	Application Element	Value	Req
@1	*	Appl_object.attr1	#200, "11113"	S
@2	*	Appl_object.attr2	#201	S
@3	*	Appl_object.attr3	bought	M
@4	*	Appl_object.attr4	#300	M

The syntax for @1 and @3 values is different, but the meaning of the value column is the same:

"the value for this attribute is a simple base type and it's value is represented here in the column".

The syntax @2 and @4 is identical and so is the meaning: "the value for this attribute is complex or cannot be represented as a simple base type. The value is found by referencing the entity id number from the mirror postprocessor input specification."

The rules for when to use an entity-id in the Value column are a little strange as well:

"If the value is suggested, the # number must be present. If the value of the attribute is mandatory and it can be represented as a simple base type, or a combination of simple base types (using one of the forms described in Annex F), then the # number is not included and the value is represented directly in the column. If the value for this attribute is simply its existence (only entities or "baggage" referenced directly by the the mapped AIM element) then the # number is included (even though the value is "simple"). If the value is too complicated to represent then the # number must be included"

#### PROPOSED SOLUTION:

Replace the current rules with the much simpler rule for ALL attributes (mandatory and suggested):

"If the attribute maps to an AIM entity type then the #number is included in the table"

This keeps all the values in the value column consistent. It also makes mirror validation easier since there will be references available for most of the values. We have found mirror validation to be an important step in improving the quality of the test suite.

#### PROPOSED RESOLUTION: ACCEPT with modifications

Modify the rule to simply include the #number for all attributes and application objects. The qualifications rationale applies to all attributes regardless of what they map to. The primary reason for modifying the rule is that the resolution of USA-N434-10 regarding the syntax of aggregates, ORs and ANDs, requires the presence of the #numbers to ensure that the syntax is simple but non-ambiguous.

ISSUE NUMBER: USA-N434-10 (Kobe ISSUE 28)

AUTHOR: ITI

CLAUSE:

CLASSIFICATION: Minor, Technical

DESCRIPTION:

Specifying multiple values

Just as there is a question on how to represent the 1:M assertions there is a question of how to represent aggregates with more than one element. There was discussion at Dallas regarding the specification of multiple values in the Value column. The suggestion was to enclose the values in ()'s and separate them by commas. (\* Kindrick comments: Multiple values will occur in numerous situations. Any instance of an assertion reflecting multiple cardinality will have them. Any ae that maps to an AND or an OR in the mapping table may have them.\*)

#### PROPOSED SOLUTION:

We propose that multiple values aggregates be represented as a single row in the table with a comma separated list of values in the Value column. ()'s must be used to clearly delineate each of the values in

the list. For example:

Id	V	Application Element	Value	Req
@1	*	Appl_object.attr1	(#200, "11113"),   (#220, "11114")	S

Id	V	Application Element	Value	Req
@2	*	Appl_object.attr2	(#201), (#221)	S

One may question the latter case as to why the ()'s are necessary. I maintain they will be required to differentiate the references to multiple postprocessor input specs. For example when there are three postprocessor input specs one might see:

Id	V	Application Element	Value	Req
@1	*	Appl_object.attr1	#200,#302,#120	S

where the value for Appl\_object.attr1 is represented in each of the three mirror postprocessor input specs in entities #200, #302, and #120.

PROPOSED RESOLUTION: ACCEPT with modifications

The syntax for aggregates will be to enclose the entire list in ()'s (similar to the way that lists are encoded in a physical file).

Thus an aggregate might look like:

(#100,'1113', #100, '1114')

-or-

(#200, #200)

ORs in the mapping table are represented by enclosing each path in ()'s (as they are in the mapping table):

(#300,'CDI-1'),(#302,'ABC-2')

-or-

(#400),(#402)

ANDs in the mapping table are represented by enclosing all the paths in []'s (similar to the mapping table):

[#500,'First', #502,'Second']

-or-

[#600, #602]

The latter emphasizes that the multiple values are logically all part of the same semantic as in an aggregate while still maintaining a syntactically distinct style so that ANDs can be distinguished from both aggregates and ORs.

ISSUE NUMBER: USA-N434-11 (Kobe ISSUE 32)

AUTHOR: Allison Barnard Feeney/ITI

CLAUSE: Annex E, B.3, last paragraph of 7.1

CLASSIFICATION: Minor, Technical

DESCRIPTION:

Format of ATS clause 4 should be simplified and reflect needs of ATS documents intended audience: test case realizers. There is a huge disparity between the document structure for AE test purposes and for AIM test purposes. This structure does not add to readability or understandability.

NOTE: This is the issue I sent to the WG6 exploder already. Jesse has a slightly different proposal that he will present. I am willing to accept Jesse's solution (as I understand it).

PROPOSED SOLUTION:

Consolidate all the AE test purposes to one subclause. Put the assertion test purposes under the application element that appears first in the assertion. While this is not the structure of clause 4

of the AP, it parallels the structure of the mapping table and is rational. If you want to test Approval, you can easily find all test purposes related to the approval ARM object on one sub-sub-clause, with one look in the index. (This removes one subclause and MANY sub-sub clause headings and corresponding white space from the document.)

(\* Lewis comment: I agree with Allison on this one. This WAS the format agreed at the Sydney meeting but it changed due to Qualification input. I await Jesse's proposed solution to see if I accept that as well.)\*  
Move the text describing AE test purposes 4 to 4.2, and move the text describing AIM test purposes to 4.3 before the AIM test purposes. Similar text should be created for each type of test purpose, and put in the appropriate subsection. Sub-sub-clause headings should be added for each AIM entity; each test purpose for that entity should be placed in that sub-sub-clause. Then you could have an easy index entry for all AIM test purposes related to each entity.

(\* Lewis comment: Agreed, the current long lists are unreadable.)\*

(\* Kuebler comment: Allison is right.)\*

**RESOLUTION: ACCEPT**

Accept Allison's proposed changes. Move the application assertions back under the application object per the original Sydney agreement. Add new sub-subclause headings for each AIM entity in the AIM TP sections. List Application object subclauses and AIM entity sub clauses in alphabetical order. The sub-subclause heading (with an entry in the table of contents) and alphabetical ordering will make it possible to easily find any TP. Change the guidelines and the template to reflect this new structure.

**ISSUE NUMBER: USA-N434-12**

**AUTHOR: Allison Barnard Feeney/ITI**

**CLAUSE: 4.2**

**CLASSIFICATION: Minor, Technical**

**DESCRIPTION:**

The recommended percentage coverage for an abstract test suite should be provided for each release level (CD, DIS, IS).

**PROPOSED SOLUTION:**

Percent coverage should be a guideline only and should be determined by WG6 in concert with Qualification. I think it is most useful to base this recommendation on percentage of AE test purposes covered and not judge the sufficiency of a test suite by the resulting AIM test purpose coverage.

(\* Lewis comment: I thought we agreed at the Washington DC meeting that the concept of "coverage" was redundant? Given that irrelevant test purposes are pruned then the test suite will cover 100% of the test purposes.)\*

(\* Kuebler comment: Currently the answer is easy: 100%, 100%, 100%. I can wholeheartedly support any change in the first two figures.)\*

(\* Barnard comment: Maybe it would be worthwhile to state coverage in different terms then, such as so many test cases per conformance class. Actually, if my proposal for issue 33 were accepted, "coverage" would be appropriately discussed again. I don't believe that valid test purposes that haven't yet been covered by a test case should be pruned and then the statement made that the test suite covers 100% of the test purposes!)\*

**PROPOSED RESOLUTION: OPEN**

A coverage proposal is being discussed separately from this ballot resolution.

**ISSUE NUMBER: USA-N434-13**

**AUTHOR: Christophe Viel/ITI**

**CLAUSE: 7.3.1, page 17**

CLASSIFICATION: Minor, Technical  
DESCRIPTION:

The sentence: "Domain test purposes shall not add requirements beyond those in the associated AP" is too vague to be useful. It is a nice intention but if something was forgotten in the AP specification, it is better to add it in the ATS. We will say that it does not add requirements beyond those in the mind of the AP developer (who forgot to write them).

PROPOSED SOLUTION:

Just replace the sentence with: Domain test purposes shall remain consistent with the domain expertise and AP requirements.

(\* ITI comments Leave open for further discussion. The proposed wording is too vague. This issue has been discussed in WG6 before, and some changes (albeit from a different perspective) agreed upon in the PROPOSED RESOLUTION to an older issue from Allison (ISSUE 36, March 11, 1996). However, we can expect dissent (even from within WG11) if the ATSG offers ATS developers a Carte Blanche in this matter of domain TPs. \*)

PROPOSED RESOLUTION: OPEN

ISSUE NUMBER: USA-N434-14

AUTHOR: Sheila P Lewis/ITI

CLAUSE: 8.1.2

CLASSIFICATION: Minor, Technical

DESCRIPTION:

Page 20 8.1.2, 2nd para include the concept of Inclusive verdicts.

(\* Barnard Comment: I agree with all of Sheila's issues, except I don't know what inclusive verdicts are so don't know whether the concept must be included. \*)

PROPOSED RESOLUTION: ACCEPT

(assuming that "inconclusive" was meant) Add the following to the end of the first paragraph of 8.1.2: "...IUT), or INCONCLUSIVE (it was not possible to determine a PASS or FAIL verdict)."

ISSUE NUMBER: USA-N434-15 (Kobe ISSUE 80)

AUTHOR: Allison Barnard Feeney/ITI

CLAUSE: Annex B.1.2

CLASSIFICATION: Minor, Technical

DESCRIPTION:

Text about AE categorization test purposes unclear, inconsistent.

PROPOSED SOLUTION:

Clarification on text regarding categorization test purposes: There are two sentence formats from clause 4.2 of an AP. The first one represents an IDEF 1X complete categorization. This means EACH object must be ONE OF the subtypes. The second one represents an IDEF 1X incomplete categorization where each object MAY be one of the subtypes. Based on this interpretation, I disagree with the test purposes 5-7 in example 28. I believe the only valid test purposes are 1-4 + 8-16, and I would reverse the order of subtypes in the complex test purposes (put mandatory subtypes first). Clarify example 30: If it is meant for guidance for EXPRESS ARMs, determine what, if any, differences there are in the clause 4 text between IDEF and EXPRESS ARMs. It is my understanding that Clause 4 is designed to make the modeling language used in the ARM transparent. If so, this distinction is not appropriate (\* Jim Kindrick There are two types of subtype relationships possible, indicated by standard sentences in clause 4.2 of the AP, with the following meanings:

1) Sentences of the form:

"Each <application object name> is either a(n) <subtype application object name 1>, or a(n) <subtype application object name 2>, ... or a(n) <subtype application object name n>" mean an <application object name> MUST BE ONE and ONLY ONE of the listed subtypes (i.e. it is an abstract supertype and cannot be instantiated as itself, but only as a component in a complex instance).

2) Sentences of the form:

"Each <application object name> may be a(n) <subtype application object name 1>, or a(n) <subtype application object name 2>, ... or a(n) <subtype application object name n>" mean an <application object name> MAY BE ONE and ONLY ONE of the listed subtypes (i.e. it is NOT an abstract supertype and may be instantiated as itself).

We need to add a test purpose for testing an instantiation of the application object as a supertype component of a complex instance, i.e. an instance of an abstract supertype. The rule in B.1.1 that says that "each object defined in the information requirements results in one explicit test purpose ..." must also be changed. This test purpose, which represents an instance of the application object as itself, not as a defined categorisation, should not be generated for an abstract supertype which (by definition) cannot be instantiated as itself. Jim will propose some new wording for B.1.2 to define how this works.

TPs covering instances corresponding to combinations of multiple subtype categorizations will still be optional at the discretion of the ATS developer to include or exclude with some minor exceptions. This example is included for illustration purposes:

In an AP we find:

...

Appl\_object1

...

Appl\_object2 is either an A or a B.

...

A (an application object that is a subtype)

B

...

Appl\_object3 may be a C or a D.

...

C

D

...

Appl\_object4 is either an E or an F.

Appl\_object4 may be a G or an H.

...

E

F

G

H

...

Appl\_object5 is either an I or a J.

Appl\_object5 is either a K or an L.

...

This results in the following test purposes:

...

ae1 Appl\_object1 - representing Appl\_object1 instantiated as itself

...

ae2 Appl\_object2 as abstract supertype - the new test purpose for supertypes

ae3 Appl\_object2 as A - a categorization test purpose  
ae4 Appl\_object2 as B - a categorization test purpose  
...  
ae5 A - A instantiated as itself, always includes Appl\_object2 as super  
ae6 B - B instantiated as itself, always includes Appl\_object2 as super  
...  
ae7 Appl\_object3 - representing Appl\_object3 instantiated as itself  
ae8 Appl\_object3 as abstract supertype - the new test purpose for supertypes  
ae3 Appl\_object2 as A - a categorization test purpose  
ae9 Appl\_object3 as C  
ae10 Appl\_object3 as D  
...  
ae40 C  
ae41 D  
...  
ae11 Appl\_object4 as abstract supertype - the new test purpose for supertypes  
ae3 Appl\_object2 as A - a categorization test purpose  
ae12 Appl\_object4 as E  
ae13 Appl\_object4 as F  
ae14 Appl\_object4 as (E and G) - combination of categorizations  
ae15 Appl\_object4 as (E and H)  
ae16 Appl\_object4 as (F and G)  
ae17 Appl\_object4 as (F and H)  
...  
ae50 E  
ae51 F  
ae52 G  
ae53 H  
...  
ae18 Appl\_object5 as abstract supertype - the new test purpose for supertypes  
ae19 Appl\_object5 as (I and K)  
ae20 Appl\_object5 as (I and L)  
ae21 Appl\_object5 as (J and K)  
ae22 Appl\_object5 as (J and L)  
...  
ae60 I  
ae61 J  
ae62 K  
ae63 L  
...

ae2 is an example of the new test purpose, covering the case where Application\_object2 is instantiated as a abstract component in a complex instance.

In the case of Appl\_object4 there are no test purposes for

- Appl\_object4 as G
- Appl\_object4 as H

The reason is that the first categorisation of Appl\_object4 requires that it be one of E or F. So it cannot be instantiated as a G or H separately from being instantiated as a E or F. One would presume that we should at least add one of the test purposes from the set (ae22, ae23) and one from the set (ae24, ae25). So we are no longer free to just ignore all the TPs for instances with subtype combinations! The last application



object has ONLY test purposes for subtype combinations. The ATS developer must choose an appropriate subset from this list to cover the meaningful combinations expected for the AP.

(\* John Sauter: One should note especially in Jim's example that two test purposes we currently generate from the rule in B.1.1 are NOT included: Appl\_object4 (Appl\_object4 instantiated as itself)  
Appl\_object5 (Appl\_object5 instantiated as itself)

I think there was some confusion on the meaning of the test purpose generated by the rule in B.1.1 for an AO that also happened to be a supertype. We used it wrong in our example, and I have seen others use it incorrectly as well. This test purpose is NOT covered by an instance of Appl\_object4 instantiated as one of its subtypes. The guidelines clearly state that the test purpose for the AO generated by the rule in B.1.1 is for "an instance of that object as defined itself, not as a defined categorisation". Hence it is clear that this test purpose is invalid for abstract supertypes. I would like to suggest an alternative approach to Jim's that does not require an extra test purpose to be added. Although I agree that it is conceptually "cleaner" to add a test purpose to cover the application object as a supertype, such a test purpose is always covered whenever one of the categorisation test purposes is covered. Borrowing from Jim's example again, ae2 Appl\_object2 as abstract supertype

ae3 Appl\_object2 as A

ae4 Appl\_object2 as B

ae2 is covered by the same model that covers either ae3 or ae4. In other words, you cannot cover this new test purpose without instantiating Appl\_object2 as one of its subtypes. If that is the case, then it is not so clear that the new test purpose adds much value (again other than keeping everything orthogonal). This question also has bearing on the input specification table, since there is some question as to how to represent the input model without this new test purpose. I make a proposal to address that situation under Issue 110.\*)

RESOLUTION: ACCEPT

Accept the description offered by Jim. Also accept John's modification (eliminating the extra test purpose initially proposed by Jim). Update the ATS Guidelines to reflect the refined syntax for categorization test purposes.

ISSUE NUMBER: USA-N434-16 (Kobe ISSUE 107)

AUTHOR: John Sauter/ITI

CLAUSE: Annex F

CLASSIFICATION: Minor, Technical

DESCRIPTION:

Multiple Postprocessor Input Specifications

When a value is suggested we need to put in a #number to identify the entity which is the mirror (via the mapping table) to that AE. If there are multiple postprocessor input specifications in the test case, then presumably we would need to specify the #reference to each one.

PROPOSED SOLUTION:

Perhaps we could use a comma separated list:

#201, #202, #108

Any other suggestions?

(\* Kindrick comments: I guess the order of the values matches the order of the postprocessor specs? Using comma separated lists may make the tables harder to read rather than easier ... looks like multiple values. More importantly, if two postprocessor input specification variations share most of the same structure but don't share the same instance id's, then the alternate #number values are possibly the same, and they are possibly different. What this means is that a difference in #number values for a given AE does not necessarily reflect a meaningful difference between the structure of the two postprocessor variations of that AE.

Suggestion 1:

Refer only to the first postprocessor input specification from the preprocessor input specification.  
Mappings of any alternate specifications are left as an exercise for the realization of the test suite, which should be do-able using the AP and the mapping table.

Suggestion 2:

Add an additional value column for each additional postprocessor variation.

Suggestion 3:

Have separate preprocessor specifications for the additional postprocessor variations.

Suggestion 4:

Have additional preprocessor specification sections for the additional postprocessor variations. Each additional preprocessor specification section would contain only those duplicate rows from the original preprocessor specification that differ. (\* It seems like a waste when all we really need is a better syntax for referencing the links in each of the postprocessor specs. I suggest we try to come up with another syntax such as:

#201; #202; #108

or

1-#201, 2-#202, 3-#108

or

(#201, #202, #108)

I like the original idea of a simple list or the last example of a list in ()'s.

\*)

I prefer suggestions 1, 2, or 4 in that order.

\*)

(\* Kobe minutes read:

For multiple post-processor input specs: Use a fresh line for each postprocessor spec, no ranges, no vertical bar. Examples:

1: #200

2: #200

3: 'some\_string'

instead of:

1-2: #200 | 3: 'some\_string'

\*)

(\* ITI comments: Our experience with ATS303 shows that this introduces a lot of extra white space in the tables. It also makes it more difficult to create the tables. Currently we rely heavily on CSV files which do not allow a line break character to appear in a cell of the table. We would propose that post processor specs be separated by a space \s or a newline \n.\*)

PROPOSED RESOLUTION: ACCEPT with modifications

The value specification for each postprocessor input specification is preceded by the spec number followed by a ': '. They are separated by a space or a newline. Examples:

1: #200, 'Value1' 2: #300, 'Value1'

-or-

1: #200, 'Value1'

2: #300, 'Value1'

ISSUE NUMBER: USA-N434-17 (Kobe ISSUE 108)

AUTHOR: ITI

CLAUSE:

CLASSIFICATION: Minor, Technical  
DESCRIPTION:

The TP numbers are not required to be sequential or ordered. If your TP numbers are not sequential then it will be very difficult to use the list of AIM TP's covered in the Postprocessor section of an abstract test case.

PROPOSED SOLUTION:

If your AIM TPs are not sequential, include the AIM TP identifiers in the index showing the page where they are listed in Clause 4. (\* Kobe notes say: "AIM TPs are unique but not sequential. Don't put AIM TP references in the index".\*)

(\* ITI comments: Unfortunately the combination of these two statements leaves the original issue unresolved: there is no easy way to trace from a TP identifier in an ATS back to the original TP. To resolve the original problem we suggest the resolution below.\*)

PROPOSED RESOLUTION: ACCEPT with modifications

AE test purposes must be listed in alphabetical order by application object. Assign test purpose ids for these test purposes in increasing order. Do the same for AIM test purposes. Allow gaps in the test purpose id sequence to allow for test purposes which have to be manually added.

ISSUE NUMBER: USA-N434-18 (Kobe ISSUE 109)

AUTHOR: ITI

CLAUSE:

CLASSIFICATION: Minor, Technical  
DESCRIPTION:

Example 34 in B.2.2 describes aggregates with many members, but we are unaware of any standard language for an AP which allows for aggregates to be defined with many members only. Should this example and its associated text be deleted?

PROPOSED SOLUTION:

RESOLUTION: Accept  
Remove the example.

ISSUE NUMBER: USA-N434-19 (Kobe ISSUE 110)

AUTHOR: ITI

CLAUSE:

CLASSIFICATION: Minor, Technical  
DESCRIPTION:

PROPOSED RESOLUTION of Issue 80 (generation of TPs for categorisations)

raises a new issue regarding how to clearly identify the rows in the input table for complex instances or for an application object supertype instantiated as itself.

PROPOSED SOLUTION:

(\* Jim Kindrick: In an AP we find:

...

Appl\_object1

...

Appl\_object2 is either an A or a B.

...

A (application object subtype)

B (application object subtype)

...

Appl\_object3 may be a C or a D.

...

C (application object subtype)

D (application object subtype)

...

Appl\_object4 is either an E or an F.

Appl\_object4 may be a G or an H.

...

E (application object subtype)

F (application object subtype)

G (application object subtype)

H (application object subtype)

...

This results in the following test purposes:

...

ae1 Appl\_object1 - representing Appl\_object1 instantiated as itself

...

ae2 Appl\_object2 as abstract supertype - new test purpose for abstract supertypes

ae3 Appl\_object2 as A - a categorization test purpose

ae4 Appl\_object2 as B - a categorization test purpose

...

ae5 A - A instantiated as itself, always includes Appl\_object2 as super

ae6 B - B instantiated as itself, always includes Appl\_object2 as super

...

ae7 Appl\_object3 - representing Appl\_object3 instantiated as itself

ae8 Appl\_object3 as abstract supertype - the new test purpose for  
abstract

super

types

ae9 Appl\_object3 as C

ae10 Appl\_object3 as D

...

ae40 C

ae41 D

...

ae11 Appl\_object4 as abstract supertype

ae12 Appl\_object4 as E

ae13 Appl\_object4 as F

ae14 Appl\_object4 as (E and G) - combination of categorizations

ae15 Appl\_object4 as (E and H)

ae16 Appl\_object4 as (F and G)

ae17 Appl\_object4 as (F and H)

...

ae50 E

ae51 F

ae52 G

ae53 H

...

For illustration purposes in this table, each application object has one attribute and one assertion (using arbitrary Ids and Values) only to show how those elements would be ordered in the table. The input table might look like this (ignore the Value column and Req column):

Id	V	Application Element	Value	Req
=====				
@1	*	Appl_object1	#100	M
@101	*	Appl_object1.attr1	#101	S
@102	*	Appl_object1 to X (role)	@900	M
=====				
@2	*	Appl_object2 (abs)	#200	M
@201	*	Appl_object2.attr1	#201	S
@202	*	Appl_object2 to Y (role)	@800	M
@3	*	Appl_object2 as A		
@5	*	A	#200	M
@501	*	A.attr1	#210	S
@502	*	A to Z (role)	@801	M
=====				
@7	*	Appl_object3	#300	M
@701	*	Appl_object3.attr1	#301	S
@702	*	Appl_object3 to Z (role)	@900	M
=====				
@8	*	Appl_object3 (abs)	#310	M
@10	*	Appl_object3 as D		
@41	*	D	#210	M
@411	*	D.attr1	#211	S
@412	*	D to Z (role)	@911	M
=====				
@11	*	Appl_object4 (abs)	#110	M
@130	*	Appl_object4.attr1	#131	S
@131	*	Appl_object4 to Q (role)	@930	M
@12	*	Appl_object4 as E		
@14	*	Appl_object4 as (E and G)		
@50	*	E	#230	M
@501	*	E.attr1	#231	S
@502	*	E to R (role)	@931	M
@52	*	G	#233	M
@521	*	G.attr1	#234	S
@522	*	G to S (role)	@932	M

Note that all the categorisations appear immediately after the assertions for the supertype. This serves to introduce the subtype (or list of subtypes in subtype combination instances).\*)

(\* Sauter comment: From my comments in Issue 80, I would make the following changes:

1) delete all the new test purposes listed above (the ones that use the form, Appl\_object as abstract supertype). To keep it simple, I do not renumber any of the remaining ae test purposes for the example below.

2) Rather than using the form "Appl\_object (abs)" to denote an instance of Appl\_object as an abstract supertype, we would list the specific subtype categorisation that the instance represents. Below is my altered tabled from Jim's example. I have made a slight correction to some a missing attribute and role for

Appl\_object3 and changed some of the Values so they would be consistent with what a real example might look like.

Id	V	Application Element	Value	Req
=====				
@1	*	Appl_object1	#100	M
@101	*	Appl_object1.attr1	#101	S
@102	*	Appl_object1 to X (role)	@900	M
=====				
@3	*	Appl_object2 (as A)	#200	M
@201	*	Appl_object2.attr1	#201	S
@202	*	Appl_object2 to Y (role)	@910	M
@5	*	A	#500	M
@501	*	A.attr1	#501	S
@502	*	A to V (role)	@920	M
=====				
@7	*	Appl_object3	#300	M
@701	*	Appl_object3.attr1	#301	S
@702	*	Appl_object3 to Z (role)	@920	M
=====				
@10	*	Appl_object3 (as D)	#310	M
@701	*	Appl_object3.attr1	#311	S
@702	*	Appl_object3 to Z (role)	@930	M
@41	*	D	#600	M
@411	*	D.attr1	#601	S
@412	*	D to W (role)	@940	M
=====				
@14	*	Appl_object4 (as (E and G))	#400	M
@12	*	Appl_object4 (as E)	#400	M
=====				
@130	*	Appl_object4.attr1	#401	S
@131	*	Appl_object4 to Q (role)	@950	M
@50	*	E	#700	M
@501	*	E.attr1	#701	S
@502	*	E to R (role)	@960	M
@52	*	G	#800	M
@521	*	G.attr1	#801	S
@522	*	G to S (role)	@970	M
=====				

The string "(as <subtype>)" serves the same purpose as "(abs)" in alerting the reader that this AO is being instantiated as one of its subtypes and not as itself. In my table the categorisation(s) appears first in the table. It serves as the Application object that normally appears first. Note in the case of Appl\_object4, it is up to the ATS developer to pick which categorisation appears first. I chose Appl\_object4 as E and G to emphasize that this complex instance has two categorisations. Note, also that I have repeated the entity instance id in the Value column for both @14 and @12. This keeps the table more consistent so we don't end up with some AO's with values and some without. One might note that @702 should be verdicted both times it appears since in the first case the assertion defines a relationship between Appl\_object3 to Z and in the second case it defines a relationship from Appl\_object3 as D to Z. Should @701 be verdicted both times as well? I suspect it should be.\*)  
RESOLUTION: ACCEPT

The second approach proposed by John was accepted at Kobe. Changes will be made to the Guidelines.

ISSUE NUMBER: USA-N434-20

AUTHOR: ITI

CLAUSE: B.1.2

CLASSIFICATION: Minor, Technical

DESCRIPTION:

When an application object is an abstract supertype and has more than one categorization, then some of the categorisations may only appear as combinations. In such a case, some of the combination test purposes are no longer optional.

PROPOSED SOLUTION:

Add a rule that states that each of the allowed categorisations for an AO must appear in at least one of the test purposes even if it is a combination.

PROPOSED RESOLUTION: ACCEPT

Add the following text after the sentence ending with "where such combinations might possibly exist.":  
"Each of the categorisation subtypes for an application object must appear in at least one of the mandatory test purposes even if it is a combination of more than one categorisation subtype. In example 30, the subtype, `Model_placed_annotation` only appears in combination with another subtype. The test case developer must include one of the optional combination test purposes, ae026, ae029, or ae032 in the list of AE test purposes."

Note: the above text assumes that the solution to USA-N434-95 is the AND interpretation and ae023-ae025 are removed. If it is not then the example may have to change, but the concept does not.

ISSUE NUMBER: USA-N434-21

AUTHOR: ITI

CLAUSE: 8.2 and Annex F

CLASSIFICATION: Minor, Technical

DESCRIPTION:

Based on the experience with ATS303, the "Other test purposes covered" and "AIM test purposes covered" sections in clause 6 should be changed. Other test purposes are in the general section of the test case, but we have found that it makes more sense to associate the test purposes with the specific pre- or postprocessor input specification. Similarly, when there are multiple postprocessor input specifications the list of AIM test purposes covered will vary, so there should be a list with each postprocessor input specification. For constraint violation test input specifications, there may be no AIM test purposes covered, only other test purposes. Hence the title, "AIM test purposes covered" doesn't make sense.

PROPOSED SOLUTION:

Get rid of the Other test purposes covered section at the start of each test case. Add an optional "Other test purposes covered" section to the preprocessor input specification section. Use the heading "Test purposes covered" and add it to each Postprocessor input specification section. This makes more sense, since in the case of postprocessor input specs, this list may include AIM and other test purposes.

PROPOSED RESOLUTION: ACCEPT with modifications

Remove the "Other test purpose coverage" section at the start of each test case. Remove the "AIM Test purpose coverage" section at the start of the Postprocessor subclause. Add a new "Test purposes covered" section to the start of the Preprocessor subclause and each Postprocessor subclause. This section explicitly references (directly or indirectly) all the test purposes covered by the input specification in that subclause. Add the following boilerplate text to the Preprocessor Test purposes covered section:

"The following general test purposes are covered: g1, g2, and g3 <add other general test purposes as appropriate>. In the preprocessor input specification table of a test case, the numbers in column 1 (ignoring the part beyond the decimal point, if any), whose rows are not empty in column 2 (V), identify the AE test purposes covered by this test case."

[If other test purposes are covered by this preprocessor test case add the following text:]

"The following other test purposes are covered: <list the other test purpose identifiers here separated by commas>."

Add the following boilerplate text to the Postprocessor Test purposes covered section:

"The following general test purposes are covered: g1, g4, and g5 <add other general test purposes as appropriate>."

The numbers in column 1 (ignoring the part beyond the decimal point, if any) of table 1, whose rows are not empty in column 2 (V), identify the AE test purposes covered in this test case. The following AIM test purposes are covered:

<list the AIM test purpose identifiers separated by commas>."

[If other test purposes are covered by this postprocessor test case add the following text:]

"The following other test purposes are covered: <list the other test purpose identifiers here separated by commas>."

ISSUE NUMBER: USA-N434-22

AUTHOR: Boeing

CLAUSE: 9.1 Validating the abstract test suite, page 31

CLASSIFICATION: Major, Editorial

DESCRIPTION:

The good test suite must have at least the three qualities of validity, objectiveness, administrative. Validity means the ability to test what it is supposed to test, objectiveness the ability to produce the same results whoever is testing, and administrative the ability to execute the test.

PROPOSED SOLUTION:

Change "adequately cover the test purposes;" to "satisfy the test purposes;". Delete "not contain unnecessary redundancies". Add "- produce the same result whoever conducts tests".

PROPOSED RESOLUTION: REJECT

The term "coverage" is well defined and documented in the Guidelines and is the accepted terminology for this concept. It would not be appropriate to introduce the concept of "satisfying" test purposes at this point. "Not contain unnecessary redundancies" is still a good quality metric. Good test suites should not be redundant (e.g. covering the same set of test purposes in several test cases). However some redundancy may be required (for example to adequately cover the geometric shape elements). The addition of "produce the same result whoever conducts the test" is beyond the scope of this document. This is a subject for the proposed new scope for Part 33 on test case realization.

ISSUE NUMBER: USA-N434-23

AUTHOR: ITI

CLAUSE: F.3.4

CLASSIFICATION: Major, Editorial

DESCRIPTION:



The description of the value column for attributes is not clear. The examples given are not helpful since they are all grouped together and it is not obvious what each of the different forms is meant to convey.

**PROPOSED SOLUTION:**

Break up the description into smaller sections. In each section define the kind of attribute, how it is represented, refer to the production rule that covers that representation and then give an example if appropriate.

**PROPOSED RESOLUTION: ACCEPT**

Changes are too numerous to describe in this resolution. The section will be re-written to make it clearer.

**ISSUE NUMBER: USA-N434-24**

**AUTHOR:** Qualification/Crusey

**CLAUSE:** page all - Clauses 4, 5, 7, and 8

**CLASSIFICATION:** Major, Editorial

**DESCRIPTION:**

In general, the organization of the document is confusing to the reader. Information concerning the major topics is dispersed throughout the document at different levels of detail. This requires the reader to continually flip across many pages to connect up the information. In general, like information concerning the same technical area should be co-located in the document, e.g. all test purpose information together, all verdict criteria information together, all test case input specification information together, etc.

**PROPOSED SOLUTION:**

**PROPOSED RESOLUTION: ACCEPT**

Document reorganization will be delayed until resolution is reached on the other technical issues.

**ISSUE NUMBER: USA-N434-25**

**AUTHOR:** Qualification/Crusey

**CLAUSE:** Clause 6

**CLASSIFICATION:** Major, Editorial

**DESCRIPTION:**

The bulk of an ATS document that uses part 21 for postprocessor input specification format consists of part 21 files that are primarily of value in an electronic form. The immense number of pages of part 21 files makes it very difficult to read and review the paper document.

**PROPOSED SOLUTION:**

Provide part 21 files on a floppy diskette only (use pc dos format for files). Add a new annex to the ATS called "Annex C : Postprocessor input specifications" which is a reference to the electronic form of the postprocessor input specifications. The existing "Annex C: Excluded test purposes" is promoted to Annex D. Suggested boilerplate:

Annex C

(normative)

Postprocessor Input Specifications

This annex provides a listing of the postprocessor input specifications for this part of ISO 10303. The postprocessor input specifications are formatted according to ISO 10303-21. This annex is provided only in computer-interpretable form.

Provide a table that shows correspondance between test cases and input specs with 3 columns, test case subclause number, test case subclause title, filename. Come up with naming convention for files. If naming convention is clear enough, no need to have the table. Reference in test case would say:

"See Annex C."

PROPOSED RESOLUTION: ACCEPT

This is done in 2 places:

1. In 8.2.5.2, add the following:

Postprocessor input specifications for the ATCs in an ATS accompany it in digital form on diskettes or other media. They are introduced in ATC as follows:

Input Specification:

-----

See Annex C

Add a normative annex C that establishes the link between each ATC and its associated postprocessor input specifications.

2. Add suggested boilerplate and description about the new annex to a new subclause (between E.12 and E.13) in the guidelines:

#### E.13 Annex C Postprocessor Input Specifications

Annex C is a normative annex containing a table listing the postprocessor input specification filenames for each abstract test case. The annex begins with the following text:

This annex provides a listing of the postprocessor input specifications for this part of ISO 10303. The postprocessor input specifications are formatted according to ISO 10303-21. This annex is provided only in computer-interpretable form.

The table consists of three columns:

Column 1: Test case subclause number and name

Column 2: Postprocessor subclause number

Column 3: The filename of the postprocessor input specification present on the media.

ISSUE NUMBER: USA-N434-26

AUTHOR: Qualification/Crusey

CLAUSE: Annex H

CLASSIFICATION: Major, Editorial

DESCRIPTION:

Need to expand the checklist - want to use it for quality checks of ATS documents.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

The changes are too numerous to describe here. They will be made as part of the document reorganization.

ISSUE NUMBER: USA-N434-27

AUTHOR: Qualification/Crusey

CLAUSE: General

CLASSIFICATION: Major, Editorial

DESCRIPTION:

Expand the guidelines to give complete and full explanation of the use of EXPRESS-I for pre-processor input specification. Provide examples of both EXPRESS-I and Part 21 throughout the document. Identify where the differences occur and in what form are they realized.

PROPOSED RESOLUTION: ACCEPT

The only difference is in the postprocessor instance reference from the Value column of the preprocessor table. Text was added to the Guidelines to clarify.

ISSUE NUMBER: USA-N434-28

AUTHOR: Qualification/Crusey

CLAUSE: General

CLASSIFICATION: Major, Editorial

DESCRIPTION: Q&V has not completed a detailed review of the ATS Development Guidelines to ensure that the instructions specified for documentation of aTSs are in line with the supplementary directives. Please ensure that these documents have been harmonized and that no conflicts exist.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Change the formatting to improve clarity and to align it better with both the supplementary directives and with other guidelines.

ISSUE NUMBER: USA-N434-29

AUTHOR: Qualification/Crusey

CLAUSE: General

CLASSIFICATION: Major, Editorial

DESCRIPTION:

Organization of the ATS Guideline is NOT USER FRIENDLY! Bites and pieces are scattered throughout the document with little or no logical pattern apparent. If the organization remains as documented in ATS Guidelines Document WG6/N102 and SC4/N434 a detailed description of the organizational structure and layout of the guideline shall be placed in the Introduction. The description shall state how the Clauses relate to the Annexes, e.g. 5.5 with E.8 with Annex A and Annex B. Also refer to Example 2 in 5.8 during this journey through the ATS guideline.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Document reorganization will be delayed until resolution is reached on the other technical issues.

ISSUE NUMBER: USA-N434-30

AUTHOR: Boeing

CLAUSE: 4.2 Coverage, page 9

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The abstract test suite coverage should be bought off by both developers and implementers.

PROPOSED SOLUTION:

Change "The abstract test suite developers shall establish\_ " to "The abstract test suite user community shall determine \_". Delete the second paragraph.

PROPOSED RESOLUTION: REJECT

The coverage issue is still open (see USA-N434-12). Users and implementers can review an ATS during its ballot cycle which is the appropriate place to review the coverage offered by an ATS.

ISSUE NUMBER: USA-N434-31

AUTHOR: Boeing

CLAUSE: Generic

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Format of document does not match callout of format in N432

PROPOSED SOLUTION:

Reformat document to match N432 directions; font size, paragraph formatting, heading/subheading formatting, list formatting

PROPOSED RESOLUTION: ACCEPT

Change the formatting to improve clarity and to align it better with both the supplementary directives and with other guidelines.

ISSUE NUMBER: USA-N434-32

AUTHOR: Boeing

CLAUSE: 3.3.1, p. 3

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Test is not left justified

PROPOSED SOLUTION:

Left justify text per N432, 1.2.4 p. 5 and 1.5.1, p. 19

PROPOSED RESOLUTION: ACCEPT

Left justify the text

ISSUE NUMBER: USA-N434-33

AUTHOR: Boeing

CLAUSE: 5, p. 10

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

List is not formatted per N432

PROPOSED SOLUTION:

Format list per N434, 1.2.6, p. 7

PROPOSED RESOLUTION: ACCEPT

The exact approach for doing multi-level lists is given in the supplementary directives. Change the guidelines to match that format.

ISSUE NUMBER: USA-N434-34

AUTHOR: Boeing

CLAUSE: Annex D., Generic

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Tables and Figures are not numbered or titled

PROPOSED SOLUTION:

Title and number figures

PROPOSED RESOLUTION: ACCEPT

Add table titles. No figures are present in Annex D.

ISSUE NUMBER: USA-N434-35

AUTHOR: Boeing

CLAUSE: D.2, p. 57

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Last line of table goes to next page

PROPOSED SOLUTION:

Reformat to put all of table on one page

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-36

AUTHOR: Boeing

CLAUSE: Generic

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Methods documents, while not mandatory for Parts and APs, should at the very least put forth an example and follow the instructions put forth in the methods documents for formatting and text.

PROPOSED SOLUTION:

Follow the methods documents for formatting and text arrangements as an example of how the Parts and APs should be written.

PROPOSED RESOLUTION: ACCEPT

Change the formatting to improve clarity and to align it better with both the supplementary directives and with other guidelines.

ISSUE NUMBER: USA-N434-37

AUTHOR: Qualification/Crusey

CLAUSE: page 9 - Clause 4.4

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

This clause contains two distinct and different ideas: 1) minimal object and entity sets, and 2) basic tests.

PROPOSED SOLUTION:

It should be divided into two clauses - perhaps both subclauses of a new general clause entitled something like "Partitioning the A into test cases".

PROPOSED RESOLUTION: ACCEPT with modifications

The concepts are too related to break up into separate clauses. Split the paragraph after the second sentence. Begin the new paragraph with the sentence:

"The minimal object and entity sets can be used to construct basic tests as defined in ISO 10303-31".

ISSUE NUMBER: USA-N434-38

AUTHOR: Qualification/Crusey

CLAUSE: page 12 - Clause 5.5 Documentation of test purposes

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The last sentence before Example 2, beginning with "The text shall be immediately followed by a forward reference ..." should be moved to the first paragraph and thus be more prominent. It is now obscure and seemingly unimportant, although it is quite important.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT with modifications Add the following sentence to the end of the first paragraph in 5.5:

"Test purposes include a reference to the abstract test case(s) in which the test purpose has a verdict applied to it."

ISSUE NUMBER: USA-N434-39

AUTHOR: Qualification/Crusey

CLAUSE: page 13 - Clause 5.8 Abstract test suite annexes

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The third bullet point, "An ISO-required annex providing information used for electronic document tracking", should read : "An ISO-required annex providing information object registration".

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-40

AUTHOR: Qualification/Crusey

CLAUSE: page 13 - Clause 5.8.2 Excluded test purposes, E.13

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The third sentence, "Test purposes may be deliberately removed from the abstract test suite or may be excluded due to lack of appropriate input specifications in the abstract test cases.", is not really what was intended. Test purposes that are not covered due to lack of appropriate input specifications are not to be excluded from the list of test purposes in clause 4 of the ATS. They remain listed in clause 4, the lack of a forward reference to a test case where they have a verdict assigned is the clear indication of a lack of appropriate input specifications. Only those test purposes deliberately excluded shall be moved to Annex C of the ATS and given the reason for exclusion. The text of the guidelines should say this. Also, page 70 - Annex E.13 Annex C Excluded test purposes. The text states "AnnexC is a required informative annex that shall contain the list of all test purposes derived from the AIM EXPRESS that do not have verdict criteria associated with them in any abstract test case." This need to be modified to read something like "AnnexC is a required informative annex that shall contain the list of all test purposes derived from the AIM EXPRESS that have been deliberately excluded from the ATS."

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Add the proposed re-wording in subclause 5.8.2 and E.13 (where the boilerplate for ATS Annex C is given).

ISSUE NUMBER: USA-N434-41

AUTHOR: Qualification/Crusey

CLAUSE: page 16 - Clause 7.1 Application elements

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The last sentence of the first paragraph, should the word be "context" or "content"? I prefer content.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: REJECT

It does not make sense to talk about the "content" of an application domain here. Context is the intended sense.

ISSUE NUMBER: USA-N434-42

AUTHOR: Qualification/Crusey

CLAUSE: page 16 - Clause 7.1 Application elements

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The fourth paragraph, second sentence beginning with "The interpretation of each test purpose derived from the information requirements is given ..." along with the following statement describing the test purpose interpretation should be placed in a NOTE so as to distinguish it from boilerplate text used in the documentation of test purposes. A second NOTE should follow to define what is meant by the phrase "(insert test purpose here)" in the first NOTE.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT with modifications

Change the text in 7.1 to read:

"The interpretation of each test purpose derived from the information requirements is given as follows: the IUT shall preserve the semantic associated with the unique application element from which the test purpose was derived. This implies that the semantics of the application element are preserved by the IUT between the input and output of a test according to the reference path specified in the mapping table of the AP."

Add similar text in the boilerplate for clause 4 of an ATS defined in E.8.

ISSUE NUMBER: USA-N434-43

AUTHOR: Qualification/Crusey

CLAUSE: page 16 - Clause 7.1 Application elements

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Last paragraph, second sentence. Need additional sentence making a clear statement that assertion test purposes are grouped with the appropriate application object, forward assertions with the from object, inverse assertions with the to object.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

(see USA-N434-11)

ISSUE NUMBER: USA-N434-44

AUTHOR: Qualification/Crusey

CLAUSE: page 17 - Clause 7.2 Application interpreted model

CLASSIFICATION: Minor Editorial

DESCRIPTION:

The third paragraph, second sentence beginning with "The interpretation of each test purpose derived from the AIM EXPRESS schema is given..." along with the following statement describing the test purpose interpretation should be placed in a NOTE so as to distinguish it from boilerplate text used in the documentation of test purposes. A second NOTE should follow to define what is meant by the phrase "(insert test purpose here)" in the first NOTE.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT with modifications

Change 7.2 to read:

"The interpretation of each test purpose derived from the AIM EXPRESS schema is given as follows: the postprocessor shall accept the input in accordance with the AIM EXPRESS structure corresponding to this test purpose. This implies that the semantics of the application element represented by the AIM element are preserved by the IUT between the input and output of a test according to the reference path specified in the mapping table of the AP. This also implies no violations of any constraints (e.g. where rules or global rules) that apply to the AIM element."

Add similar text in the boilerplate for clause 4 of an ATS defined in E.8.

ISSUE NUMBER: USA-N434-45

AUTHOR: Qualification/Crusey

CLAUSE: page 17 - Clause 7.2 Application interpreted model

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Footnote 5 - what does this mean? Does an IUT emitting a UDE during testing receive a FAIL? Especially since there will be no UDE's presented as input in a test case. Or, does the testing simply ignore any UDE generated? In either case, this issue should not be a footnote, but a proper NOTE or perhaps normative text.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Move the footnote into the body of the text as a Note: "Preprocessor implementation may instantiate user defined entities, but they are only checked for conformance to ISO 10303-21 syntax."

ISSUE NUMBER: USA-N434-46

AUTHOR: Qualification/Crusey

CLAUSE: page 18 - Clause 7.2 Application interpreted model

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Last paragraph before EXAMPLES 6,7,8, the sentence "Test purposes derived from these ancillary AIM elements are typically not worth the time and effort of explicit testing and shall be excluded from the set of test purposes to be covered and documented in annex C of the ATS". Strike the sentence, replace with something like "It is recommended that test purposes derived from these ancillary AIM elements shall be excluded from the set of test purposes to be covered and documented in annex C of the ATS".

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT



Use the proposed wording.

ISSUE NUMBER: USA-N434-47

AUTHOR: Qualification/Crusey

CLAUSE: page 19 - Clause 7.3.1 Domain test purposes

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Need an explicit statement to the effect that these test purposes are optional at the discretion of the ATS developer using domain expertise.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Change the second sentence of the second paragraph of 7.3.1 to: "Domain test purposes are optional at the discretion of the ATS developer using AP domain expertise and judgment to determine if they are necessary."

ISSUE NUMBER: USA-N434-48

AUTHOR: Qualification/Crusey

CLAUSE:

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Example test cases should be included, one using part21 and another using EXPRESS-I as the postprocessor input specification as a guide to the reader.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT with modifications

As with the AP Guidelines, the best example of how to document an ATS is a complete ATS compliant with the ATS Guidelines. A complete ATC example could run into 30 pages and would require a large amount of background information from the AP. Rather than give complete examples, use Part 12 fragments in the existing examples.

ISSUE NUMBER: USA-N434-49

AUTHOR: Qualification/Crusey

CLAUSE: Annex E

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

ATS guidelines template/boilerplate will be moved to the SD and referenced from the guidelines in the next revision.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

No changes required.

ISSUE NUMBER: USA-N434-50

AUTHOR: Qualification/Crusey

CLAUSE: Annex E.7

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The ATS document template needs to include the definition of application element in ATS clause 3.4 Other definitions.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-51

AUTHOR: Qualification/Crusey

CLAUSE: Clause 3, Annex E.7

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Definitions Clause 3 : (general) copy those used in an ATS into the boilerplate of Annex E.

Definitions Clause 3.1 : fix by adding - (ATS) and - (CC)

Definitions Clause 3.2 : add (ATC), add - inconclusive (verdict)

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Make the proposed changes in the document

ISSUE NUMBER: USA-N434-52

AUTHOR: Qualification/Crusey

CLAUSE: Annex E.8

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Clause 4.2 boilerplate heading is wrong - should be Application element.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-53

AUTHOR: Qualification/Crusey

CLAUSE: Annex E

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Add the Implementation method test purpose for part 21 headers files to the boilerplate.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

The syntax of the header section is covered with g2 and g4. Add a common other TP regarding the encoding of the schema name in the header. Add the following boilerplate text to Annex E: "The following test purpose is derived from requirements in ISO 10303-21 and applies to preprocessors only:

other1 The IUT correctly encodes the AIM schema name in the exchange structure (see 6.<??>)."

ISSUE NUMBER: USA-N434-54

AUTHOR: Qualification/Crusey

CLAUSE: Annex E

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Comments from Mary Mitchell impact the boilerplate of the Introduction (Annex E.3). Shantanu has notes from Mary via Jesse. Also, comments on Scope from Mary (Annex E.5) will get changes, need to incorporate into guidelines boilerplate, 303, and 302. No boilerplate is given in the guidelines for clause 4.1 - Mary says there should be some in the guidelines - need two variants for the boilerplate of 4.1 - one variation is the case where there are domain tps, the other is the case where there are no domain tps. Boilerplate for 4.2 changes : change "Correctly instantiate in the ..." to "The implementation under test shall correctly instantiate the semantic associated ...", also change in the next sentence : "are preserved between the ..." to "are preserved by the implementation under test between the input and output of a test, as well ...". (sxd is capturing these changes, which roll back into the ATS guidelines boilerplate).

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Add boilerplate text from Mary. Move 4.1 Domain TPs to 4.4 and make it optional (so no boilerplate text is needed if there are none). See USA-N434-42 and USA-N434-44 for rewording of the meaning of TPs.

ISSUE NUMBER: USA-N434-55

AUTHOR: Qualification/Crusey

CLAUSE: Annex H.1.1.4

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Refers to H.2.2, should be H.1.2.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-56

AUTHOR: Qualification/Crusey

CLAUSE: Clause 8.2

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

First sentence - abstract test suite - change to abstract test case.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-57

AUTHOR: Qualification/Crusey

CLAUSE: Clause 8.2.1

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

ATC Identifier : state that case is not meaningful in the identifier

PROPOSED SOLUTION:

PROPOSED RESOLUTION: REJECT

The Id is now the clause number (such as 6.1.1) and case is irrelevant (see USA-N434-79).

ISSUE NUMBER: USA-N434-58

AUTHOR: Qualification/Crusey

CLAUSE: Clause 8.2.2

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

TC Summary : need to specify that a blank line is required before and after each heading.

NOTE : this applies to each keyword heading ; e.g. other test purposes covered

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Add wording to section 8.2 to specify the blank line before and after the keyword heading.

ISSUE NUMBER: USA-N434-59

AUTHOR: Qualification/Crusey

CLAUSE: H.1.2.3

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

This question is wrong due to the table, the left hand column is the tp covered - this question needs to reflect that (also the forward reference to 8.2.3 is not quite correct)

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

If the test purpose coverage section is moved (see USA-N434-21), remove H.1.2.3 and put the question that used to be there under H.1.2.4. Change the question to: "Is there at least one test purpose covered by this abstract test case (8.2.4)?"

ISSUE NUMBER: USA-N434-60

AUTHOR: Qualification/Crusey

CLAUSE: F.1.1

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Remove "see Table 1" from the template. The table follows immediately, so there is no need for such a reference.

PROPOSED SOLUTION:

(\* ITI comments: The original purpose of this reference was to allow (in the future) the inclusion of partial input specification tables. This would simplify the ATS by specifying common information that is referenced from another part of the ATS. The reference at the beginning of this section ("See table 1") was meant to be expanded to include all the tables that make up the entire input specification.

PROPOSED RESOLUTION: ACCEPT with modification Since the input specification is potentially composed of many local and remote tables, figures and diagrams, change the simple statement, "see table 1" to the following: "The input specification is defined in table <n>, figure <n>, ... " where the complete list of relevant tables and figures is given. This makes more sense when there is only one table as well.

ISSUE NUMBER: USA-N434-61

AUTHOR: Qualification/Crusey

CLAUSE: 8.2.4.1 Column 3

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Change word Capitalize to Use upper case The list within a list is not according to SD for the second level, see SD and fix. The first two bullets have parenthetical phrases after them which should not be in parenthesis.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

The proposed changes will be made to the document. The exact approach for doing multi-level lists is given in the supplementary directives. The Guidelines will be changed to match that format.

ISSUE NUMBER: USA-N434-62

AUTHOR: Qualification/Crusey

CLAUSE: Annex F

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Add a note in guidelines explaining multiple postprocessor specification syntax

Add a NOTE describing the proposed syntax for alternative postprocessor specifications.

PROPOSED SOLUTION:

(\* ITI comments: We don't know what an "alternative" postprocessor specification is \*)

PROPOSED RESOLUTION: ACCEPT

Add a description of multiple postprocessor specification syntax which results from resolution of USA-N434-16.

ISSUE NUMBER: USA-N434-63

AUTHOR: Qualification/Crusey

CLAUSE: Annex G, Bibliography

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Title of AP203 is wrong.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Change to "Configuration controlled 3d designs of mechanical parts and assemblies"

ISSUE NUMBER: USA-N434-64

AUTHOR: Qualification/Crusey

CLAUSE: Annex F.1.1

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Confusion over the constraints on values description - Cn is not clearly understood to be C#.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Change the note in Constraints on Values section to: "...beginning with the label "C<number>: " where <number> is an integer."

Change the boiler plate for the Req column in E.10 to: "... or constrained (C<number> where <number> is an integer)."

Change the description of the Column 5 in 8.2.4.1 to: "... S for suggested values, or C<number> (where <number> is an integer) for constrained values,..."

ISSUE NUMBER: USA-N434-65

AUTHOR: Qualification/Crusey

CLAUSE: H.1.2.4

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

For item e): change the question to ask "Is the syntax correct?" Add a NOTE to indicate how the syntax can be verified.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT with modifications. Appropriate syntax is not sufficient. Change the question to read: "Do the postprocessor input specifications provide enough information to unambiguously lead to an executable test case which meets the test purposes covered by this abstract test case?"

ISSUE NUMBER: USA-N434-66

AUTHOR: Qualification/Crusey

CLAUSE:

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Need a specification of how to populate a physical file header with a unique test case identifier

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Add Annex C to map the physical files to the abstract test cases (see USA-N434-25).

ISSUE NUMBER: USA-N434-67

AUTHOR: Qualification/Crusey

CLAUSE: H.1.2.5 - Specific verdict criteria

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Need two sets of questions - one for preprocessor and one for postprocessor . This is an issue that is to be addressed by "old wg6" - ambiguity is to be assessed by experts, not QV.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: REJECT

There is no need for two sets of questions: they would be identical which would increase redundancy.

Ambiguity must be addressed by experts. This annex is not just for qualifications, but for all reviewers of an ATS which includes experts. Qualifications may choose to ignore questions which are beyond its expertise to answer.

ISSUE NUMBER: USA-N434-68

AUTHOR: Qualification/Crusey

CLAUSE: 8.2.4, 8.2.5

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

For readability, the subclauses of 8.2.4 should include the word Preprocessor and the subclauses of 8.2.5 should include the word Postprocessor.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-69

AUTHOR: Qualification/Crusey

CLAUSE: 8.2.5.3

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The word assertion should be statement affirmation.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT with modification

Change the term 'assertion' to 'statement' in clauses 8.2.5.3, 8.2.4.3, 5.6, and E.9.

ISSUE NUMBER: USA-N434-70

AUTHOR: Qualification/Crusey

CLAUSE: Annex F

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Guidelines needs to be clear that Constrained values, if changed, the changes need to be reflected in the corresponding verdict criteria.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Add the following text to the end of the note on C1: "...example data in Table 1 above as well as any effects those changes might have on other parts of the input specification and verdict criteria"

ISSUE NUMBER: USA-N434-71

AUTHOR: Qualification/Crusey

CLAUSE: H.1.1.2

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Item d): the question should read "information requirements of clause 4.2" not mapping table.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-72

AUTHOR: Qualification/Crusey

CLAUSE: E.9

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

In the boilerplate text, the list format is incorrect according to the SD! needs to be corrected. For 5.2 boilerplate, there is only one item so list format is not required - need to modify the NOTE to state that if additional items are included, proper list format shall be adopted.

**PROPOSED SOLUTION:**

**PROPOSED RESOLUTION: REJECT**

The test purposes and general verdict criteria are not in list format since they are not a list. They are presented in the same format used for AE and AIM test purposes.

**ISSUE NUMBER: USA-N434-73**

**AUTHOR: Qualification/Crusey**

**CLAUSE: H.1.1.3**

**CLASSIFICATION: Minor, Editorial**

**DESCRIPTION:**

2) can we forget this question?

6) this one too?

**PROPOSED SOLUTION:**

**PROPOSED RESOLUTION: REJECT 2, ACCEPT 6**

It is important that the requirement that led to any test purpose is clearly stated. Qualifications does not need to worry about boilerplate general test purposes, but the ATS developer may add new general test purposes and these should be checked. Delete 6) and replace it with: "If YES does each general verdict criterion reference the test purpose identifier(s) of the related test purpose(s)?"

**ISSUE NUMBER: USA-N434-74**

**AUTHOR: Qualification/Crusey**

**CLAUSE:**

**CLASSIFICATION: Minor, Editorial**

**DESCRIPTION:**

Need to have a mechanism to relate the general test purposes to their corresponding general verdict criteria in clause 5 of the ATS. This is not discussed at all in the current guidelines and needs to be detailed in the guidelines.

**PROPOSED SOLUTION:**

**PROPOSED RESOLUTION: ACCEPT**

Add the following text to the end of the first paragraph in the clause 5 boilerplate (subclause E.9 of ATS Guidelines) to indicate the link: "Each general verdict criteria includes a reference to its associated test purpose enclosed in parentheses."

Add a reference from each general verdict criteria back to the general or other test purpose that it is related to (see UKATS-17).

**ISSUE NUMBER: USA-N434-75**

**AUTHOR: Qualification/Crusey**

**CLAUSE: Annex H**

**CLASSIFICATION: Minor, Editorial**

**DESCRIPTION:**

Include the ATC checklist in line with the ATS checklist, not as a reference.

**PROPOSED SOLUTION:**

**PROPOSED RESOLUTION: ACCEPT**

This will be done as part of the re-write of annex H (see USA-N434-26).



ISSUE NUMBER: USA-N434-76

AUTHOR: Qualification/Crusey

CLAUSE: Clause 8.2 first sentence

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Replace "Each abstract test suite" with "Each abstract test case".

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-77

AUTHOR: Qualification/Crusey

CLAUSE: Clause E.11

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Boilerplate for Annex A is wrong - each test case identifier should be in [square brackets] to indicate it is to be replaced with the actual test case identifier. Also, within all boilerplate, the stuff to be replaced by the user of the boilerplate shall be distinguished within <angle brackets> , not [square brackets].

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: USA-N434-78

AUTHOR: Qualification/Crusey

CLAUSE: Clause E.10

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Change third paragraph to reflect the case of multiple postprocessor input specifications, based on the resolution determined by WG6.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Change the 1st sentence of the 3rd paragraph to read: "Each abstract test case has a subclause for the preprocessor test information and a subclause for each postprocessor input specification and related test information."

ISSUE NUMBER: USA-N434-79

AUTHOR: Qualification/Crusey

CLAUSE: Clause 8.2.1

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The last sentence of the first paragraph is wrong -- the subclause number is not to be the unique. Each test case name shall be followed by "ATC". (ref. guidelines 8.2.1)

PROPOSED SOLUTION:

PROPOSED RESOLUTION: REJECT

The subclause number is the unique identifier for an ATC. The characters, "ATC" no longer add any value and will not be used (see USA-N434-57).

ISSUE NUMBER: USA-N434-80

AUTHOR: Qualification/Crusey

CLAUSE: Clause 8.2

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The location of documentation for extra details and execution sequence does not match that given in the Annex F - Annex F is the good way and needs to be reflected in 8.2

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Change 8.2 to reflect the correct way.

ISSUE NUMBER: USA-N434-81

AUTHOR: Qualification/Crusey

CLAUSE: Clause 1

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Scope should be stated with in and out of scope statements. See Spplementary Directives for specifics.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Change the Scope section to:

Scope

This document sets out the methods and procedures for the development and documentation of abstract test suites (ATSs) for STEP application protocols (ISO 10303 2xx parts). Each application protocol has its own ATS.

The following are within the scope of this document:

- the organization and documentation of ATSs suitable for use in the testing of implementations based on ISO 10303-21 and ISO 10303-22.
- the development and formatting of test purposes;
- the development and formatting of verdict criteria;
- suggested approaches for the structuring and creation of abstract test cases(ATCs);
- the formatting of abstract test cases(ATCs) ;
- suggested approaches for the validation of an ATS and its component ATCs.

The following are outside the scope of this document:

- methods or procedures for the development of conformance requirements

of application protocols;

- methods or procedures for the partitioning of application protocols into its conformance classes;

- methods or procedures for the evaluation of interoperability between implementations based on different application protocols.

ISSUE NUMBER: USA-N434-82

AUTHOR: Qualification/Crusey

CLAUSE: General

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The use of typically, generally, etc. should be avoided except for examples.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Eliminate these terms from the document where possible

ISSUE NUMBER: USA-N434-83

AUTHOR: Qualification/Crusey

CLAUSE: 4.4

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

4.4 maybe should be split into two concepts

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

(see USA-N434-37)

ISSUE NUMBER: USA-N434-84

AUTHOR: Qualification/Crusey

CLAUSE: Annex E

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Annex E should specify what is included in the Table of Contents. This specification shall be in agreements with the SD.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Add a new section after E.1 entitle Table of Contents with the following text: The Table of Contents includes all the first and second level subclauses in the document. For Clause 6 only, it also includes the third level subclause headings. The Table of Contents includes all the figures, tables and annexes. It is formatted according to the Supplementary Directives.

ISSUE NUMBER: USA-N434-85

AUTHOR: Qualification/Crusey

CLAUSE: Annex E.8 Boilerplate text for Clause 4

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Boilerplate text for Clause 4--areas are ambiguous, needs improvement.

Last word of 1st Paragraph "by type"? 2nd sentence of paragraphs 2 & 3. What is the relationship to Annex A & B? Similar type problems exist for subclause 4.2 and 4.3 boilerplates. What is the relationship to Annex A & B? Boilerplate text for subclause 4.1 Domain Test Purposes needed. What is the relationship to Annex C?

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Change the boilerplate text to clarify.

ISSUE NUMBER: USA-N434-86

AUTHOR: Qualification/Crusey

CLAUSE: Annex E, boilerplate for annex C

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Is Annex C mandatory whether info is present or not. If so, boilerplate text needs to be supplied when no info is present.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

Add following to E.13:

"If there are no excluded test purposes then the following text should appear in this annex:

There are no AIM test purposes which have been excluded."

ISSUE NUMBER: USA-N434-87

AUTHOR: Qualification/Crusey

CLAUSE: Annex E

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Annex for Test Purpose without verdict criteria, should this be a required Annex? If so, boilerplate text needs to be supplied when no info is present.

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

(see USA-N434-86)

ISSUE NUMBER: USA-N434-88

AUTHOR: Qualification/Crusey

CLAUSE: General

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Should there be an annex for Error tests for pre- and post-processor?

PROPOSED SOLUTION:

PROPOSED RESOLUTION: REJECT

Error test cases per-se have been dropped from discussion in the ATS Guidelines per the Kobe decision.

ISSUE NUMBER: USA-N434-89

AUTHOR: Qualification/Crusey

CLAUSE: Annex F

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Input spec Table the identifier for the object id @ XXX if more than 1 instance of an AO is in the table the AO shall be followed by "." and an integer. see F.3.1

PROPOSED SOLUTION:

PROPOSED RESOLUTION: ACCEPT

There does not appear to be a need to change the Annex.

ISSUE NUMBER: USA-N434-90

AUTHOR: Sheila P Lewis/ITI

CLAUSE: E.10

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

Page 63: E10 1st para of boilerplate. 2nd sentence does not make sense.

PROPOSED RESOLUTION: ACCEPT

(assuming the third sentence was in question) Change the 3rd sentence to read: "All the test purposes addressed by the test case are referenced either explicitly, in the test purposes covered sections, or indirectly, through the verdicted rows of the preprocessor input specification table."

ISSUE NUMBER: USA-N434-91

AUTHOR: ITI

CLAUSE: 8.1.2

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The ATS Guidelines never explicitly states that specific verdict criteria are required to verdict for other test purposes. When an abstract test case covers an other test purpose, there needs to be a an explicit verdict criteria in the Specific verdict criteria section that addresses that test purpose.

PROPOSED SOLUTION:

In this section (or in the description of other test purposes), make a statement about the generation of specific verdict criteria for other test purposes.

PROPOSED RESOLUTION: ACCEPT

Add the following sentence to the end of the first paragraph of 7.3: "All other test purposes have at least one associated general or specific verdict criterion."

Change the second sentence of the paragraph in 8.1.2 before Example 19 to read:

"...and are often associated with other test purposes or semantic validation..."

ISSUE NUMBER: USA-N434-92

AUTHOR: ITI

CLAUSE: 8.2.3

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The description does not match Annex F.1.

**PROPOSED SOLUTION:**

Add text to 8.23 to make these consistent.

**PROPOSED RESOLUTION: ACCEPT**

Assuming the changes proposed in USA-N434-21 are accepted, re-word the section as follows:

"The list of covered test purposes is the first section of the preprocessor subclause introduced by the keywords:

Test purposes covered:

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with a blank line before and after the title. This section is used to list all the general, AE or other test purposes covered by this preprocessor input specification. The identifiers of the AE test purposes present in the preprocessor input specification are listed in the Id column of the input specification (see 8.2.4.2). The V column identifies which of those AE test purposes are verdicted (covered) in this test case. Boilerplate text is used to reference those test purpose identifiers without the need to explicitly repeat the list in this section. In addition to the AE test purposes any general or other test purposes (from subclause 4.3, 4.4, 4.5 or 5.1) covered by this preprocessor test case are listed in this section using the boilerplate text and format defined in F.1.1."

**ISSUE NUMBER: USA-N434-93**

**AUTHOR: ITI**

**CLAUSE: 8.2.4.3 and Annex F**

**CLASSIFICATION: Minor, Editorial**

**DESCRIPTION:**

General verdict criteria are included in the section entitled "Specific Verdict Criteria"

**PROPOSED SOLUTION:**

Change the name to "Additional Verdict Criteria" or something equivalent.

**PROPOSED RESOLUTION: ACCEPT**

Rename the section to "Verdict criteria". Add boilerplate text to reference all the general and derived verdict criteria that are included. For the preprocessor section: "The following general verdict criteria apply: gvc1, gvc2, and gvc3 (and its related derived verdict criteria). The verdict criteria derivable from the application elements with non-blank entries in column 2 (V) of the input specification table apply. "[add the following when there are specific verdict criteria:] "The following specific verdict criteria apply:" [List the full text of the specific verdict criteria]

For the postprocessor test case add the following boilerplate: "The following general verdict criteria apply: gvc1, gvc4, and gvc5. The verdict criteria derivable from the application elements with non-blank entries in column 2 (V) of table 1 above apply." [add the following when there are specific verdict criteria:] "The following specific verdict criteria apply:" [List the full text of the specific verdict criteria]

**ISSUE NUMBER: USA-N434-94**

**AUTHOR: ITI**

**CLAUSE: F.3.3**

**CLASSIFICATION: Minor, Editorial**

**DESCRIPTION:**

The format for the role string is never explicitly defined. ATS's have used different forms (e.g. some use a different string for the inverse role description).

PROPOSED SOLUTION:

Define the format for the role string for both the forward and inverse assertion.

PROPOSED RESOLUTION: ACCEPT

Change Example 58 to make it clearer. In the paragraph describing Assertions in F.3.3 add the following after the third sentence: "The format of the relationship is: Application\_object1 to Application\_object2 (role) where "role" is the role description from clause 4 of the AP (as used in the test purpose). For inverse relationships, the role string is the inverse role description."

ISSUE NUMBER: USA-N434-95

AUTHOR: ITI

CLAUSE: B.1.2, example 30

CLASSIFICATION: Minor, Editorial

DESCRIPTION:

The example is wrong. Since Draughting\_annotation is an abstract supertype for Annotation Element, or Dimension, or Draughting\_callout, ae023-ae025 are not allowed.

PROPOSED SOLUTION:

fix the example (\* ITI further thoughts: It is unclear what the meaning of two categorisations is. One can combine them in three ways:

- 1) A combination of both is allowed in which case example 30 is correct. This is obtained by joining the two categorisation sentences with an OR.
- 2) The Combination follows the most restrictive rule in which case ae023-ae025 are not allowed. This is obtained by joining the two categorisation sentences with AND.
- 3) The Combination is "exclusive or" in which case ae026-ae034 are not allowed.

Option 3 is the least likely interpretation, but we cannot determine whether 1) or 2) is the correct interpretation.\*)

PROPOSED RESOLUTION: OPEN

ISSUE NUMBER: FRA-1

CLAUSE: 2 (Normative references)

CLASSIFICATION: Minor Editorial

DESCRIPTION: EXPRESS I is not anymore a standard but a Technical Report.

PROPOSED SOLUTION: Change text in normative references accordingly.

PROPOSED RESOLUTION: ACCEPT

ISSUE NUMBER: FRA-2

CLAUSE: 4 (Overview)

CLASSIFICATION: Minor Editorial

DESCRIPTION: The description of the scope of part 34 is not adequately reflecting the latest choice of the group.

PROPOSED SOLUTION: Change text to reflect the fact that part 34 is describing abstract test methods for implementations of application protocols based on part 21 or 22.

**PROPOSED RESOLUTION: ACCEPT**

Modify the 4th bullet item in the 1st paragraph of this clause.

**ISSUE NUMBER: FRA-3**

**CLAUSE: 4 (Overview)**

**CLASSIFICATION: Editorial**

**DESCRIPTION:** The sentence starting with "The following are needed to build an abstract test suite..."

There is a mixture of what is needed for the development of the ATS and what will be in the ATS when completed. I believe the only things that are necessary to produce the ATS are:

- an application protocol,
- means for describing ATCs.

That is all. The structure for the abstract test suite comes from the study of the AP domain, applicable implementation methods are indicated in the AP (no other choice is possible) and available as standards, requirements on the extent of testing are coming from AP, requirement on the behaviour of the IUT are coming from the AP, the methods presented in part 34 are available as standards like any other part.

**PROPOSED SOLUTION:** Change text to:

"The following are needed to build an abstract test suite:

- an application protocol,
- means for describing ATCs."

**PROPOSED RESOLUTION: ACCEPT with modifications**

This clause will be redone as a result of the general document reorganization.

**ISSUE NUMBER: FRA-4**

**CLAUSE: 4 (Overview)**

**CLASSIFICATION: Minor Editorial**

**DESCRIPTION:** Page 6 Process for creating an ATS says twice that coverage is described in section 4.2.

**PROPOSED SOLUTION:** Remove the repetition.

**PROPOSED RESOLUTION: ACCEPT**

**ISSUE NUMBER: FRA-5**

**CLAUSE: 4 (Overview)**

**CLASSIFICATION: TECHNICAL**

**DESCRIPTION:** Last but one para, item c) indicates that ATS shall be at the CD stage in order to submit AP as DIS. Resolution from SC4 taken in Kobe has changed into "ATS may first be published as TR instead of committee drafts of standards".

**PROPOSED SOLUTION:** Check in Toronto what is needed in the guidelines. I believe the guidelines should remove this information as it may change again. The perspective taken for the document is that ATS are potential standards. The fact that the ATSs may be published as TR is an intermediate stage in the process that shall not change the final objective.

**PROPOSED RESOLUTION: Accept with modification**

The requirement in item c) is present to ensure that a certain amount of progress has been made on the ATS by the time the AP is submitted as DIS. See proposed wording changes in USA-N434-1.

**ISSUE NUMBER: FRA-6**

**CLAUSE: 7.3.4**



**CLASSIFICATION: TECHNICAL**

**DESCRIPTION:** Page 19 Constraint violation test purposes This type of test is not in the scope of conformance testing.

**PROPOSED SOLUTION:** The guidelines should say that the test purposes are not allowed in the ATS.

**DISCUSSION:**

(\* ITI comments: Postprocessor rule validation tests have often been discussed in the context of STEP conformance testing. Some members of the erstwhile WG6 have opposed the use of rule validation testing since it requires the use of test data containing invalid data. They argue that conformance testing (CT) should use only valid data. Others have maintained that there are valid conformance requirements within an AP and its normative references that require the use of rule validation testing. Ignoring those requirements significantly reduces the value of the conformance test suite to the user community. Other ISO standards have accepted the use of error test data so in principle there is no restriction in using it for this ISO standard as well. Nevertheless, in response to those opposed to invalid test data, the editors of the Guidelines for the development of abstract test suites placed several caveats in the ATS Guidelines which made such testing entirely optional and at the discretion of the ATS developer. This appeared to be the best compromise position to handle all sides of the issue.

At the Kobe ISO Meeting, in the final moments of WG6, a simple majority vote was taken eliminating the section pertaining to postprocessor rule validation testing from the ATS Guidelines. Rather than offer a resolution, this vote nullified the efforts that had previously sought to forge a compromise position that was accepted by all concerned parties and met the needs of the user community for STEP conformance testing.

APs are free to make conformance requirements governing the violation of rules. Below are two examples we have run across:

1. The PICS (Protocol Implementation Conformance Statement) proforma for some APs requires a default response from IUTs when they receive data that do not comply with the AP. This response must be specified in the PICS. In order to determine whether an IUT meets this requirement of the standard one must present it with data that does not comply with the AP.

2. The Guidelines for the development and approval of STEP APs, cl. 4.5, requires:

"Only those constructs specified in the AIM shall be produced or accepted by an implementation."

In order to determine whether an IUT only accepts constructs specified in the AIM, one must present the IUT with constructs NOT specified in the AIM and determine whether it accepts them or not.

Since these are clearly stated requirements of an AP, conformance testing has a mandate to test for whether these requirements are met by an implementation. Not all APs specify such requirements and therefore such testing is not required in all circumstances. We believe the discussion on testing such conformance requirements should be reinstated in the Guidelines, but made very clear in how its use must be restricted to specific conformance requirements in the AP.\*)

**PROPOSED RESOLUTION: OPEN**

Discussion of constraint violation test purposes has been removed from the document (see also USA-N434-6), but neither have they been explicitly forbidden. This remains an open issue.

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